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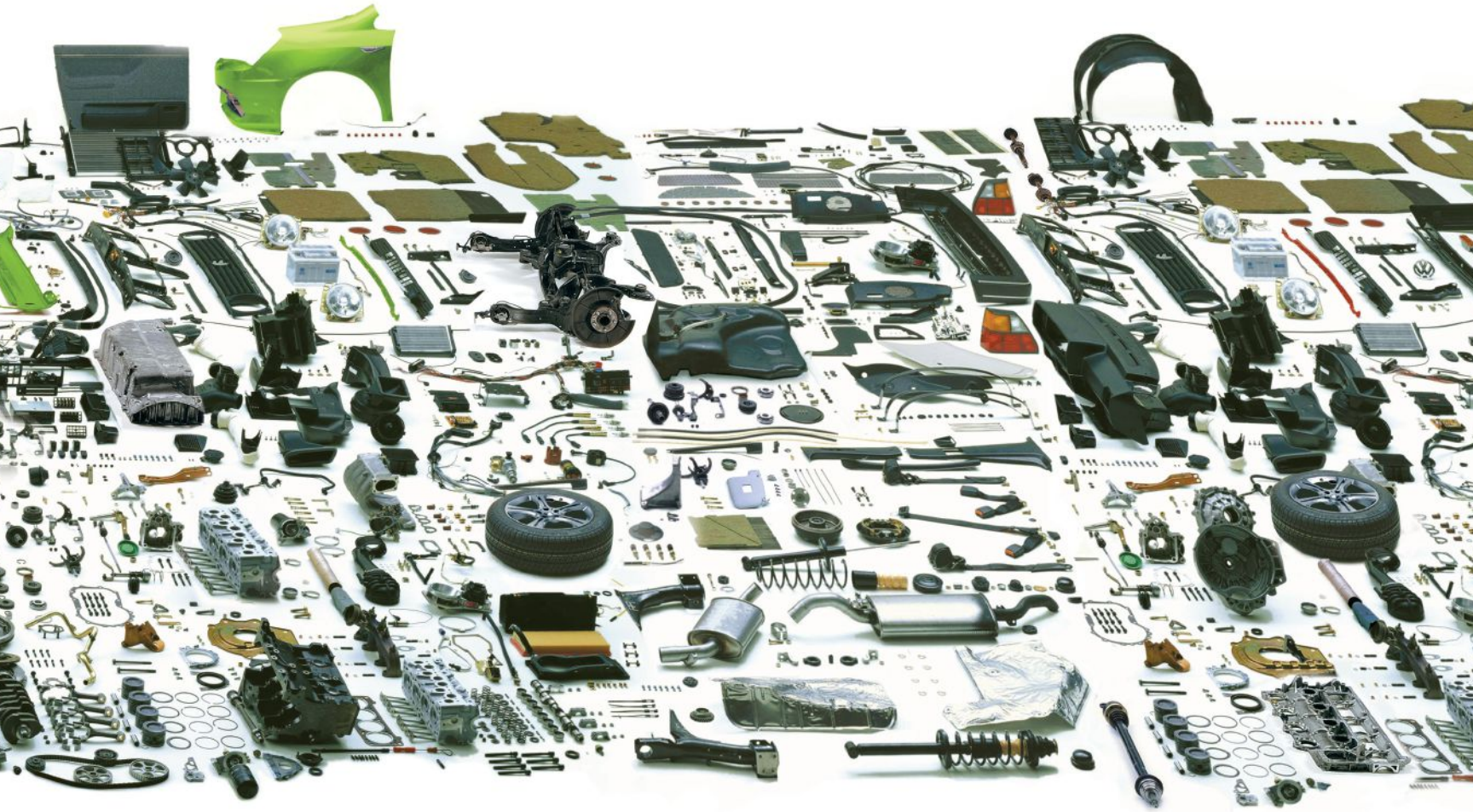
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ARCHITECTURAL RECORD (ISSN: Print 0003-858X Digital 2470-1513) April 2016, Vol. 204, No. 4 Published monthly, 12 times annually, by BNP Media II, LLC., 2401 W. Big Beaver Rd., Suite 700, Troy, MI 48084-3333. Telephone: (248) 362-3700, Fax: (248) 362-0317.
ANNUAL RATE FOR SUBSCRIPTIONS TO INDIVIDUALS IN THE U.S.: $72.00 USD. Annual rate for subscriptions to individuals in Canada and Mexico: $79.00 USD (includes GST & postage); outside North America: $199.00 (Int'l mail) payable in U.S. funds. Single Copy sales $9.95; Foreign $11.00.
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Periodicals Postage Paid at Troy, MI and at additional mailing offices.
POSTMASTER: Send address changes to: ARCHITECTURAL RECORD, P.O. Box 5732, Harlan, IA 51593.
CANADA POST: Publications Mail Agreement #40015472. GST account: 131263923. Send returns (Canada) to ASENDIA, Local Return Address P.O. Box 1051, Fort Erie, ON, L2A 6C7.
CHANGE OF ADDRESS: Send old address label along with new address to ARCHITECTURAL RECORD, P.O. Box 5732, Harlan, IA 51593.
FOR SINGLE COPIES OR BACK ISSUES: contact Ann Kalb at 248/244-6499 or KalbR@bnpmedia.com.

EDITORIAL OFFICES: 646/849-7124. 350 Fifth Avenue, Suite 6000, New York, NY 10118. **WEBSITE:** architecturalrecord.com.

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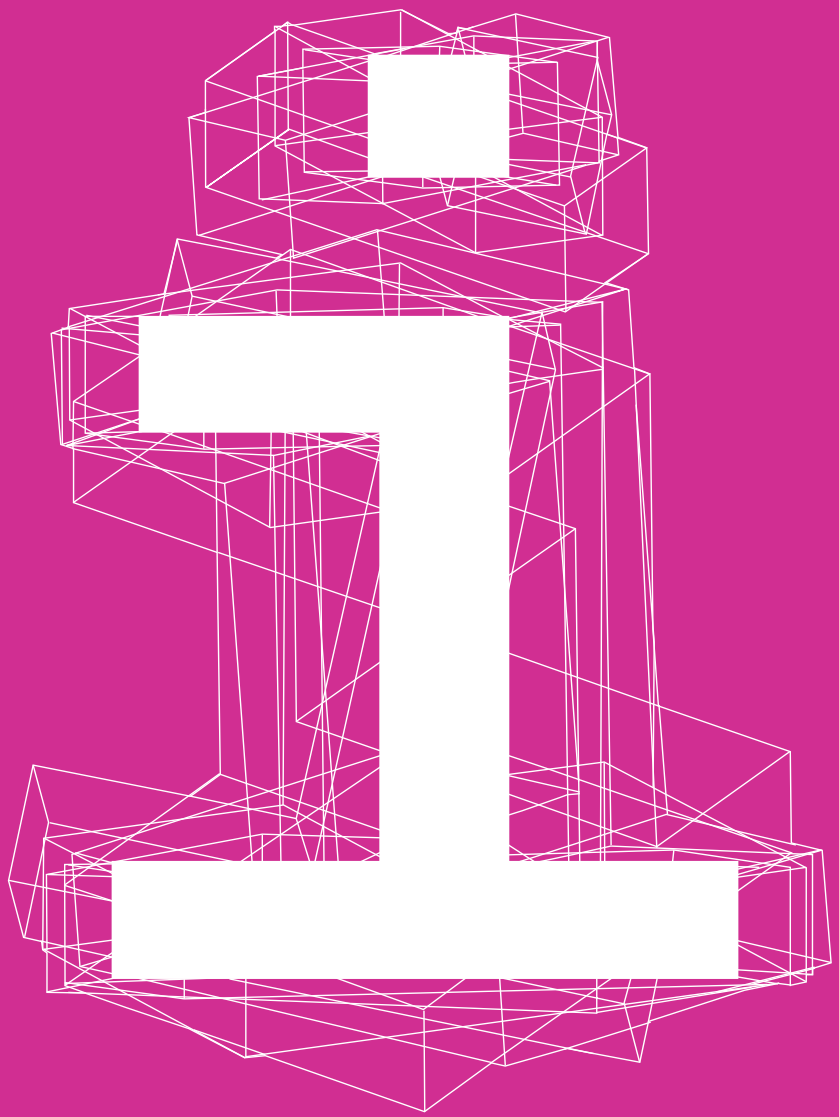
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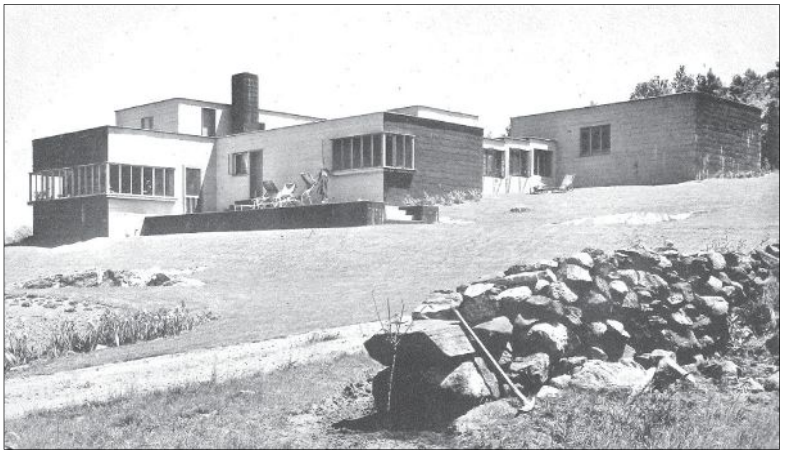
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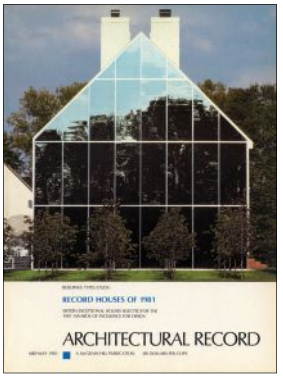
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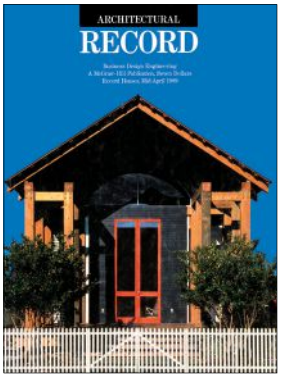
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FROM THE VAULT
Read an archival article about the house of Rex Stout in Fairfield County, Connecticut (RECORD, July 1933), designed by A. Lawrence Kocher and Gerhard Ziegler. The project is mentioned in this month's 125 Years essay about Kocher, a former editor of the magazine.



HOUSE OF REX STOUT IN FAIRFIELD COUNTY, CONNECTICUT, BY A. LAWRENCE KOCHER AND GERHARD ZIEGLER.





RECORD HOUSES COVERS FROM 1981 (HUGH NEWELL JACOBSEN) AND 1989 (WALTER CHATHAM ARCHITECT).



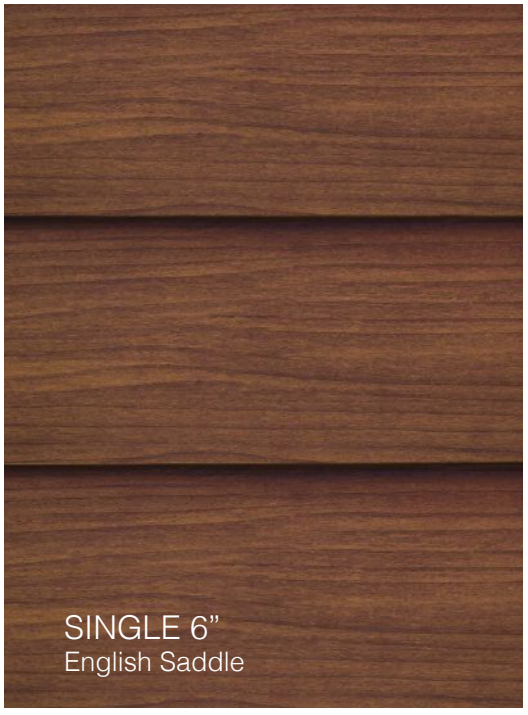
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How We Live, from Top to Bottom

While celebrating design excellence in houses, we can't forget that millions of the poorest Americans live far beyond the reach of architecture.

WELCOME TO the April issue and the annual publication of Record Houses, a long tradition at the magazine. While not extending all the way back to our beginnings 125 years ago, RECORD has published special features on residential design for most of its history, long before the first issue of Record Houses came out in 1956. As early as 1910, the magazine began creating special sections on country houses and seaside cottages.

This year, each of the eight winning houses has an especially strong connection to its surroundings, whether it is a cedar-clad cabin perched in a forest overlooking a lake in Nova Scotia (page 92) or a suburban New York residence that blurs the boundaries between architecture and landscape using stone walls that are set into its craggy site (page 86). The urban dwellings in the pages ahead are striking not only for their unusual plans—a multilevel Tokyo house is accessed only by a snaking perimeter ramp (page 104)—but for the sensitive scale with which they respond to their neighborhoods.

Yet we get used to the fact that, each year, some readers complain about the size and luxury of many of the houses that we publish. Yes, we select beautiful designs that explore innovative ideas, but take note: this time, the stunning houses in the pages ahead are a little more modest in scale, down to a 1,000-square-foot retreat in the high desert plains of Arizona (page 76). And the architect of the largest house we feature masterfully broke down her client's program to create urbane volumes that fit quietly onto a city street in Chicago (page 62). I hope you find this year's choice of Record Houses intriguing and inspiring.

At the same time, we are aware that many Americans don't have a secure roof over their heads. They are not only the chronically homeless—though many are intermittently homeless—they are those who live below the poverty line yet outside the safety net of either public housing or federally funded housing vouchers. Instead, they are trapped in the private market of often substandard rentals, which can eat up an enormous chunk of their meager monthly incomes, far more than the 30 percent guidelines for subsidized programs. They number in the millions and are the majority of America's poorest citizens, but they are largely invisible and powerless. According to the Center on Budget and Policy Priorities, only one in four low-income renter households receive vouchers, because of funding limitations, and the number of those unassisted households with "worst case" housing needs rose by more than 30 percent between 2007 and 2013.

A profoundly disturbing account of such households is *Evicted: Poverty and Profit in the American City*, a new book by Harvard social scientist Matthew Desmond. Desmond spent a year closely following eight families in Milwaukee, who bounced in and out of squalid apartments and a trailer park, evicted when they failed to make the rent. He found the subjects of his extensive research—both the tenants and landlords—by moving into their neighborhoods and befriending them, with his notebook in hand.



There is nothing you would call architecture in *Evicted* unless you count the majestic Neoclassical Milwaukee County Courthouse, where local evictions are adjudicated. Desmond's subjects tended to live in—and be kicked out of—places with sagging porches, broken or boarded-up windows, blocked plumbing, serendipitous heat and hot water, walls with creeping mold and scurrying roaches. According to the author, landlords often rented units with code violations to desperate families, with the stated intention to fix them—though it frequently turned out to be easier to find cause to evict rather than repair. Historically, rents in major cities have been staggeringly high in the worst neighborhoods—even today, rents for the poorest units are often not far below the median for the entire market.

Thirty per cent of all those evicted in Milwaukee were women from African-American neighborhoods, Desmond found. In most cases, of course, they had children who were thrown out with them.

Desmond, who was named a MacArthur fellow last year, is a keen observer and a beautiful writer. Harrowing and heartbreaking, his book has tragedy on every page. He is also clear-eyed and surprisingly nonjudgmental—about both those evicted and their landlords. His central thesis: such costly housing only perpetuates the downward cycle of poverty. His solution: universal housing vouchers for all households below a certain income level. He doesn't advocate more public housing. "We can't build our way out," he writes.

So this is not a book aimed at architects and urbanists. It is a book for everyone.

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief

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Acoustical Control in Buildings

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The Shift to Modular Refrigeration

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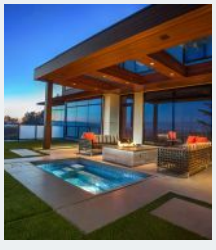


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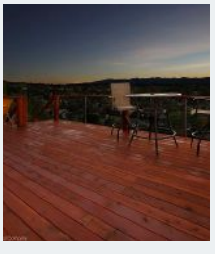
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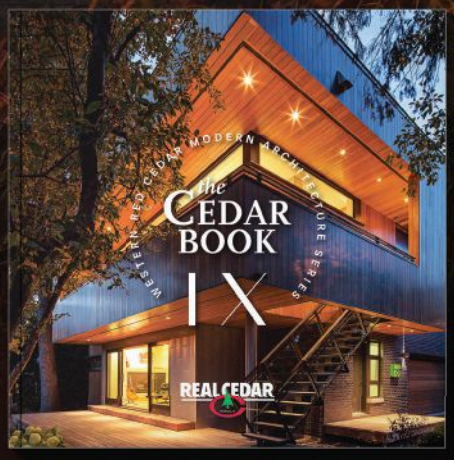
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LEFT TO RIGHT: DESIGNER DOOR HARDWARE WITH SPICE LEATHER AND UJ LEVER, MACK DOOR HARDWARE WITH MACK KNOB, AND PROVENCE PULL

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perspective

The only thing you can see is all the battles you lost and all the compromises that had to be made, or the f___ups that couldn't be fixed. —*Bjarke Ingels, discussing built work in a televised interview with* 60 Minutes *correspondent Morley Safer.*



AIA Diversity Survey Yields Bleak Results

BY LAURA RASKIN

WHAT'S THAT saying—the first step to solving a problem is recognizing that you have one?

Last month, the American Institute of Architects (AIA) released the results of its 2015 Diversity in the Profession of Architecture survey and the numbers tell a grim—and unsurprising—story: the profession doesn't look at all like the society it serves.

If there is a silver lining, it's that in the last few years, the lack of racial and ethnic diversity and the underrepresentation of women in American architectural practice—as well as the challenges they face—are no longer only for back-room conversation.

"We are witnessing a real transition to a mainstream discourse that will benefit the profession at all levels," says Rosa Sheng, a senior associate at Bohlin Cywinski Jackson and founding chair of Equity by Design, a call to action and committee, formed by the AIA San Francisco chapter in 2011.

Of the 7,522 AIA survey respondents (most with degrees in architecture and jobs in the field), almost 70 percent of women believe that they are not represented equally in the profession, while men are split: nearly 50 percent believe women are well represented.

Most of the women surveyed said that they believe they are not likely to receive the same pay as their male colleagues for comparable positions. Along with people of color, women also believe they are less likely to be promoted to senior positions. Women (white and of color) think that they are underrepresented because long hours make it difficult to start a family; there is lack of flexibility in working hours; and work-life balance is, well, unbalanced. (For what it's worth, only half of survey respondents reported a high level of satisfaction with their jobs.)

Less than 2 percent of AIA members are African American, and a majority of the people of color responded that they believe the factors are rooted in childhood: people of color have little knowledge of architecture as a career option, don't have role models, have difficulty affording architecture school (especially if they are from inner cities), and are likely to pursue higher-paying careers that can help support their families if they are first- or second-generation college students.

Findings from the AIA's most recent diversity survey show that women and minorities feel underrepresented in the profession, an unsurprising result. The AIA hopes to translate the data into targeted initiatives to increase the diversity of its members. Last year, the AIA hosted a women's leadership summit in Seattle (above).

The first such AIA survey was conducted in 2005; since then, demographic growth has been steady but moderate. According to 2014 statistics, women represented nearly 22 percent of AIA membership, up from 17 percent. African American membership went from 1.57 percent to 1.89 percent. This is an improvement, but "certainly not enough," said Emily Grandstaff-Rice, the 2015–16 chair of the AIA Equity in Architecture Commission and a senior associate at Boston's Arrowstreet Inc.

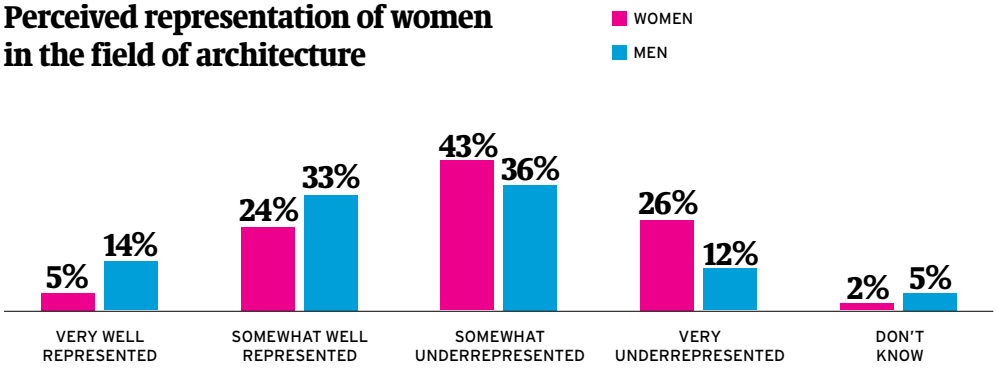
"This is a complex issue, and, for many, this is a personal issue," she said in an e-mail. "There are no easy answers or quick fixes. It is imperative that we foster a more inclusive workforce across the profession."

The Equity in Architecture Commission is planning to base recommendations on the

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Perceived representation of women in the field of architecture



DATA: COURTESY THE AMERIACAN INSTITUTE OF ARCHITECTS

survey and present them to the AIA's board of directors by the end of the year.

Firms have also been trying individually to address the inequalities. Gabrielle Bullock, director of global diversity at Perkins + Will, says the company has reshaped its recruitment teams to represent a cross-section of genders, ages, and races in order to attract the candidates it wants.

In a telephone interview, Bullock said she had just left a meeting with leaders from historically black colleges and universities to address how they can place their students in large firms. In addition, "we've created a progress tracker around recruitment, retention, cultural advocacy within offices, learning and development, outreach to K–12 and to universities," says Bullock. "We're serious about what we're after."

She laments the low African-American numbers in the profession and says that the AIA survey confirmed what Perkins + Will has seen to be true. "I tell people that I'm one of the 0.3 percent of licensed African-American women architects in this country," she says. "I'm usually the only one in the room."

Meanwhile, Equity by Design closes its own second Equity in Architecture survey on April 1. As of mid-March, Sheng said the survey had received 4,500 responses and she was hopeful that they would ultimately get 8,000. "While some of the questions are similar [to the 2014 survey] (i.e., job satisfaction, compensation, leadership or ownership positions, defining success, negotiation tendencies), we also have many new questions that address employee engagement vs. burnout, race/ethnic identification, and deeper nuances of work-life flexibility affecting career advancement opportunities," said Sheng in an e-mail. She participated in the work group for the AIA's survey, and, while the AIA's and Equity's vary in research methodology and results, they reach essentially the same conclusions.

"I get asked a lot for metrics and results that [prove that] the numbers have changed," says Sheng. But, what is more important, she thinks the profession as a whole has to treat the source of the problems, and it's going to take time. She sees progress in the number of firms that are addressing the challenges of talent retention and women returning to the profession after a long hiatus.

"Diversity drives innovation," maintains Bullock. "The success of our profession relies on us being a more diverse one. The work will only be better." ■

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Designers of U.S. Pavilion at 2015 Milan Expo Shortchanged

BY FRED A. BERNSTEIN



James Biber, the architect of the U.S. Pavilion at the 2015 Milan Expo (above), says he was paid less than half of his 2014 contract for design work. According to an article in *Politico* last month, creditors are together owed about $26 million from a private fund-raising group chosen by the State Department to oversee the pavilion's construction. Secretary of State John Kerry (below, left) delivered remarks at the expo last fall.

SINCE THE 1990s, the U.S. State Department has been barred from spending public funds on world expo pavilions. The result has been a series of disasters: the U.S. was a no-show at the expo in Hanover, Germany, in 2000; it then built lackluster, overly commercialized pavilions for the 2005 and 2010 expos in Aichi, Japan, and Shanghai, China.

Last year, the U.S. made a strong showing at the Milan Expo, with its theme "Feeding the Planet, Energy for Life." But now comes a denouement that may cripple chances of there ever being a successful U.S. pavilion again: the architect, the exhibition designer, and the contractor have been paid only a fraction of what they are owed for work on the pavilion.

Because of the 1990s law, funds for expo pavilions have to be raised privately. And the group formed to raise funds for the Milan pavilion hasn't come close to covering its approximately $60 million in costs.

Architect James Biber, whose Manhattan firm designed the pavilion, with its Coney Island Boardwalk–style ramps and 7,200-square-foot living wall, says he has been paid less than half of the $2.2 million he is owed under his 2014 contract. He says that the approximately $1 million shortfall is a "huge percentage" of his firm's annual revenue, and that he has had to lay off staff because of it.

"It's unconscionable and it's disgraceful," Biber says.

Thinc Design, which created the exhibitions, is also owed about $1 million, says its president, Thom Hennes. "And it's not like that money's profit. Most of it has already been spent."



In 2014, a nonprofit called Friends of the USA Pavilion Milan 2015 was chosen by the State Department to construct and operate the building. The group (a partnership of the James Beard Foundation and the International Culinary Center) hired Biber, who then brought in Thinc and other consultants.

Altogether, 40 creditors are owed about $26 million, according to *Politico*, the website that broke the story last month. The largest sum, about $13 million, is owed to Nussli, the Swiss company that built the pavilion.

Reached on his cell phone, Charlie K. Faas, the CEO of the Friends group, said, "We have full intention of doing everything we can do to get everyone paid." He repeated the statement several times, declining to elaborate.

Fund raisers for the 2010 Shanghai pavilion were able to cover the $60 million cost of that building, according to *Politico*, in part because then-Secretary of State Hillary Clinton strongly supported the effort. Far less was raised for the 2015 pavilion, during John Kerry's tenure as Secretary of State, perhaps because U.S. companies looking to make inroads in China in 2010 did not feel the same urgency about the smaller Italian market five years later.

Now fund raising is effectively over. "Why would any private organization give money to an expo that ended six months ago?" Biber asked rhetorically. "It can only be resolved by the federal government." According to sources who participated in a conference call between the Friends group and the creditors last month, there was discussion about whether federal departments other than State, such as the Department of Agriculture, could make up the shortfall. Another conference call was scheduled for March 24 (after RECORD's press time).

Biber says he knew from the start that fund raising would be difficult, and he even gave the Friends group a liberal payment schedule to ease its cash flow. He also began work almost a year before there was money to pay him, he says, "because that was the only way the pavilion was going to get built in time."

He says he became aware of the shortfall last spring, after the pavilion was already open. "By the summer," he says, "we knew the deficit wasn't diminishing fast enough." In August, the Friends group considered closing the pavilion, mid-expo, to avoid incurring additional debt.

Altogether, more than 6 million people visited the pavilion. Thanks in part to the circulation patterns devised by Biber, it was one of the few pavilions for which visitors didn't have to spend hours waiting on line.

Now it's Biber who's waiting. As for the group that failed to pay him, he says, "For the most part, I like these people. You can point the fingers lots of ways."

The next world expo will be in Dubai in 2020; already BIG, Foster + Partners, and Grimshaw Architects are designing centerpiece pavilions. If there is to be a U.S. pavilion at the Dubai expo, Biber says, "Congress is going to have to change the system." ■

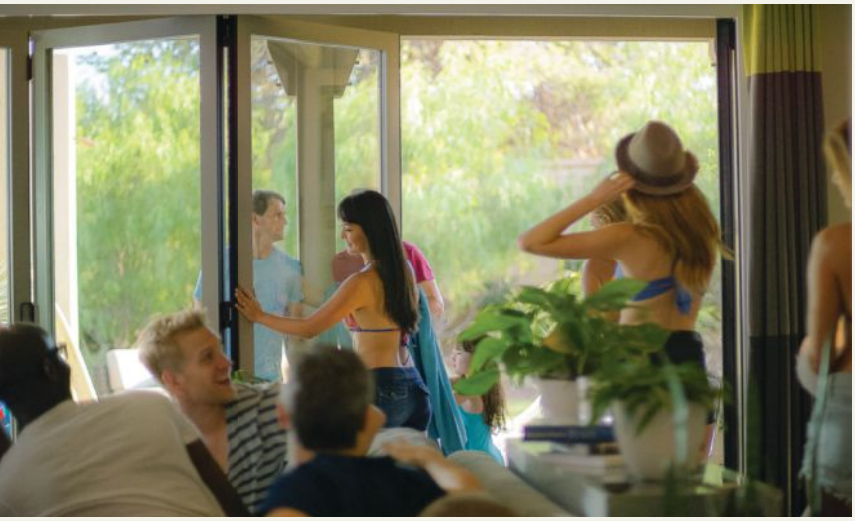
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Groups Petition Putin to Save Shukhov Tower

BY ANNA FIXSEN

PRESERVATIONISTS ARE imploring Russian president Vladimir Putin to take decisive measures to restore Shabolovka Tower, a deteriorating Constructivist masterwork in Moscow. The efforts, which include an online petition and awareness campaign, are led by the World Monuments Fund (WMF) in partnership with local conservation groups.

Vladimir Lenin commissioned the structure—more broadly known as the Shukhov Tower after its designer, Vladimir Shukhov—in 1919 to serve as a radio tower. The 50-story spire, with its stacked hyperboloid volumes and steel lattice structure, is a feat of modern engineering and a monument to post-revolutionary Russia.

Today the steel is corroding; slapdash repairs in the 1970s pushed it into further decline. Tourists are unable to directly access the site, and developers have eyed the valuable property for real-estate opportunities.

WMF's efforts come after several other attempts to save the tower. In 2010, Norman Foster spearheaded efforts; in 2014, after outcry from local groups and architects including Rem Koolhaas and Tadao Ando, the municipal heritage department reversed the decision of Russia's state broadcasting network to tear it down. But appropriate—and costly—preservation efforts promised by authorities have yet to be carried out. The WMF and its partners mounted a two-day awareness campaign in Moscow last month to coincide with the tower's 94th anniversary. The organization has also placed the Shukhov Tower on its 2016 Monuments Watch list—a biennial compendium of the world's most at-risk cultural sites. ■



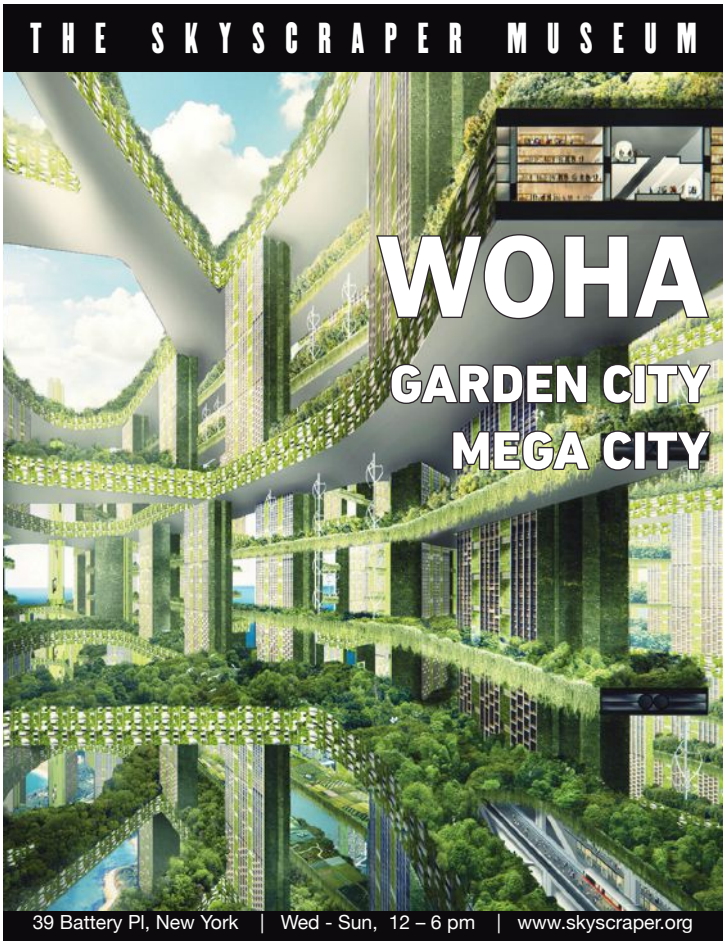


When completed in 1922, Moscow's Shukhov radio tower was an engineering marvel (above). Remarkably, the tower's final broadcast was in 2002. Today, the rusting structure is badly in need of conservation (left).

PHOTOGRAPHY: © SCHUSEV STATE MUSEUM OF ARCHITECTURE/WORLD MONUMENTS FUND (LEFT); ALEXANDER ZHOSAN/WORLD MONUMENTS FUND (RIGHT)



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[NEWSMAKER]

Frederick Steiner

BY CATHERINE GAVIN

FREDERICK "FRITZ" Steiner made national headlines in late February with the announcement that he will leave the University of Texas at Austin School of Architecture (UTSOA) to become the dean of the University of Pennsylvania School of Design, effective July 1, succeeding Marilyn Jordan Taylor. Steiner cited a state law allowing students to carry guns in classrooms as one of the factors in his decision to leave UTSOA. (A recent item in *Architect's Newspaper*'s "Eavesdrop" column claimed Steiner left over a disagreement with the university president over a new architecture building; but Steiner denies that, saying the small article was "full of inaccuracies.")



During his tenure at UTSOA, beginning in 2001, Steiner inaugurated new degree programs in both landscape architecture and interior design, and increased the school's endowments by over 71 percent. Among other initiatives, Steiner expanded the school's course offerings in Latin American architecture and urbanism.

RECORD spoke to Steiner about his decision to leave, the challenges facing architecture education, and the need for a more diverse profession.

How did the campus carry legislation affect your decision to leave UTSOA?

The passage of the campus carry legislation was a factor but certainly not *the* factor in my decision to leave UTSOA for PennDesign, my alma mater. A bigger factor for me was the state of general support of higher education in Texas. Campus carry, as it was directed to public universities, is indicative of my broader concerns. There was much discussion by the university about the law before it was enacted, but I don't think UT could have done anything more to stop this legislation. President Gregory Fenves publicly expressed his concern, and UT System Chancellor, Admiral William McRaven, former head of the U.S. Special Forces, publicly testified in opposition to the bill during the legislative session. It is a topic that greatly concerns university faculty, students, and staff, and it is being raised in discussions involving the recruitment and retention of faculty and students. We don't know yet how that will play out.

What is the debate surrounding lack of support for research at UTSOA?

State appropriations for UT—and all public universities in Texas—have eroded significantly over the past 40 years. Today, less than 13 percent of UT's budget comes from the state, while in the 1970s, it was 50 percent. This unfortunate trend of declining state support for public higher education is not unique to Texas. It's happening across the country.

Why was PennDesign the right choice for you at this moment?

Returning to Penn is like going home. The University of Pennsylvania is a great institution with a deep heritage of leadership in architecture, city and regional planning, landscape architecture, historic preservation, and fine arts. There are giant shoulders to stand on at Penn, and the PennDesign faculty have consistently been among the key voices in our field for generations. While I would be remiss not to acknowledge this legacy, it is important to maintain a forward-thinking approach . . . The moment is right for me to help launch the next generation of leaders within this already well-established framework.

Can you describe your vision for PennDesign?

We need to find ways to distinguish PennDesign from other schools of architecture and planning. The school already has areas of excellence, but I think we can make the programs at PennDesign even more distinct. The university has already made great progress on its goal of applying inclusion, innovation, and integration of knowledge to achieve social impact. The challenge will be to bring this message to a larger number of future undergraduate and graduate students across the nation and world.

What are the primary challenges facing design educators today?

There are several drivers of change that could pull design in different directions or make it more cohesive. Those overarching forces are global climate change and the urbanization of the planet. Ever-changing digital technologies, resilience, design enterprise and entrepreneurship, and public-interest design are all important as well.

Perhaps the most significant challenge facing architecture in the U.S. today is the paucity of African-Americans in the profession, especially black women. The profession needs to look more like the nation as a whole. ■

noted

Architect Claude Parent Dies at 93

Pioneering French architect Claude Parent passed away February 27 at the age of 93. Parent, known for his angular, bunkerlike structures and sloped floors, developed the theory of Function of the Oblique along with philosopher Paul Virilio. The architect collaborated with artists including Yves Klein and André Bloc and influenced present-day architects, including Bernard Tschumi and Jean Nouvel. The latter dedicated his Paris Philharmonic to Parent.

Report Reveals 436 Tall Buildings Planned for London

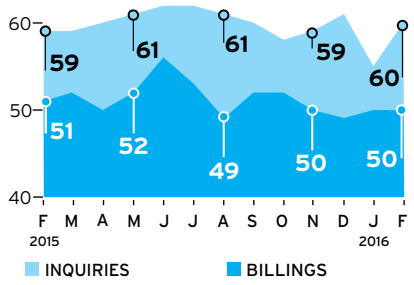
A report released by the organization New London Architecture and property consultancy GL Hearn shows that 436 tall buildings are planned for London, an additional 119 since last year. The study defined buildings 20 floors and over as "tall." Of these buildings, 233 have approval.

International Court Holds Trial for Destruction of Monuments

Ahmad al-Faqi al-Mahdi, a Jihadi leader from Mali, is accused of demolishing ancient mausoleums and a mosque in Timbuktu that were part of a UNESCO World Heritage Site. He faces the first-ever war-crimes charge for an attack on a cultural monument.

Studio Gang to Design U.S. Embassy in Brasilia

The Department of State announced on March 8 that it had selected Chicago-based Studio Gang Architects to design a multi-building U.S. embassy compound in the Brazilian capital city. This is the firm's first embassy project.



ABI Inches Up in February

After a downturn in January, the American Institute of Architects (AIA) reported that its Architectural Billing Index (ABI) moved into positive territory, with a score of 50.3 in February. This is up 0.7 points from the month prior (any score above 50 indicates an increase in billings). The new projects inquiry index meanwhile scored 59.5. AIA economist Kermit Baker says that this may indicate a positive turn: "March and April are traditionally the busiest months," explained AIA Chief Economist Kermit Baker.

PHOTOGRAPHY: © BRIAN BIRZER

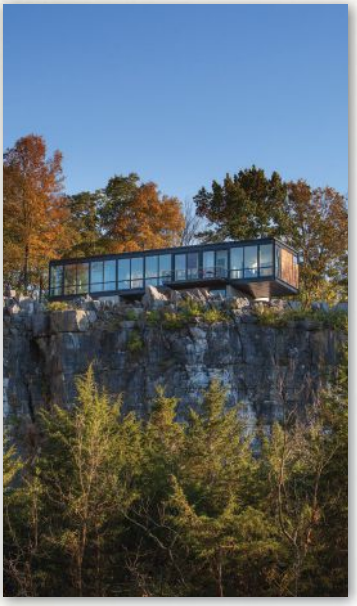
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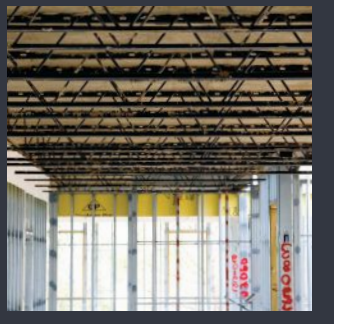
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CIRCLE 190

In the Loop

A spiraling staircase is the centerpiece of the new Barney's Chelsea.

BY JOSEPHINE MINUTILLO

"THE IDEA for a circular stair was in the air since the beginning," explains Steven Harris, architect of the newly opened Barney's flagship in downtown New York. The dazzling staircase French designer Andrée Putman created over 30 years ago for the specialty retailer's original store in the same Chelsea location lingers in the memories of its well-heeled patrons, and is still extant in the neighboring Rubin Museum of Art, which took over a corner of the store after Barney's left in 1997.

This design, also a showstopper but without Putman's delicate metal railings, marries beauty and brawn. Inspired by the spiraling stairs of Oscar Niemeyer and Luigi Moretti, Harris unfurls his suspended structure like a white party ribbon spanning four stories as it fills the glass-walled central atrium. Says Harris, "This was the largest void we could create without removing any columns." Those are irregularly spaced to dodge plumbing in this former residential building, which also features short floor-to-floor heights. "The great virtue of the low ceilings is that the stair didn't require landings."

The glass surrounding the stair—on upper floors full height, on lower ones acting as a handrail with a skirt above for a smoke baffle—features two layers of glazing with an interlayer of acrylic. A series of lines silkscreened on the panels—some mirrored, some matte gray—is reminiscent of the work of Agnes Martin and Sol LeWitt. "I wanted that element to be distinct but still allow shoppers to see across it," says Harris. "The space needed to be coherent."

Equally important, however, is the sense of spectacle about the stair—a stylish vehicle for seeing and being seen. "After all," Harris adds, "stores are very social spaces." ■



A self-supporting steel undercarriage, covered in fiberglass and then plastered, forms the curves of the suspended stairwell. A sculpted alcove with recessed lighting along its sinuous run defines the handrails. Stair treads and risers are sheathed in white marble.

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CLUE: A LANDMARK MODERNIST HOUSE WAS FAMOUS FOR ITS RETRACTABLE LIVING ROOM WINDOWS, WHERE ALTERNATING GLASS PANELS COULD SINK INTO THE BASEMENT TO GIVE THE LIVING ROOM A SENSE OF BEING OUTDOORS. THE RESIDENCE, LONG IN DISREPAIR, HAS RECENTLY BEEN RENOVATED.



The answer to the March issue's Guess the Architect is **ALBERT KAHN ASSOCIATES.** After the Packard Automotive Plant opened in 1903 in Detroit, Kahn came up with a reinforced-concrete structural system for Building No. 10 that proved to be a pioneering technique for U.S. factories. The Packard Plant hasn't been operational since the late 1990s, but the same firm is working with developer Fernando Palazuelo to convert the former factory to mixed uses.

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RIEDER

Ties That Bind

Introducing the winner of this year's MoMA PS1 Young Architects Program, Escobedo Soliz Studio.

BY ANNA FIXSEN



ESCOBEDO SOLIZ STUDIO, a two-man operation based in Mexico City, is the kind of underdog architecture firm you want to root for. Despite having limited funds, zero built work, and a combined age approximating that of the average AIA member, the pair has developed a scrappy work ethic in tandem with a strong appreciation of context and materials. That approach helped them land one of the most coveted commissions for emerging firms—the courtyard pavilion design for MoMA PS1's Young Architects Program in New York.

"Architecture schools in the U.S. have more technological resources. In Mexico, we are more pragmatic," says partner Andres Soliz Paz. "We ask ourselves, how can we build with the things we have in our hands?"



Soliz Paz, 25, and Lazbent Pavel Escobedo Amaral, 27, met on their first day studying architecture at the National Autonomous University of Mexico, one of Latin America's most prestigious academic institutions. Despite coming from different regions of Mexico, they hit it off immediately, discussing art and architecture, swapping books, and collaborating on school projects.

In 2011, 2½ years into their studies, they received a commission for a house from a friend's father. The job ultimately fell through, but they decided to consider it a learning experience and seek work with broader impact. Says Escobedo Amaral, "We wanted to make a real contribution."

With the guidance of professors, they developed a thesis project for a community on the Yucután Peninsula in need of a new chapel and civic space. Rather than build a structure with all-new materials, Soliz Paz and Escobedo Amaral proposed repurposing the timber from the deteriorating existing church for a new pitched-roof sanctuary and ancillary community rooms. While the project still needs funding, it received second place in the Holcim Awards' "Next Generation" category for Latin America in 2014, a prize honoring sustainable construction.

The Holcim award brought Escobedo Amaral and Soliz Paz to New York for the first time last autumn to participate in a workshop. On a whim, the two took a trip to Long Island City, Queens, to visit MoMA PS1 and began to seriously consider a design for the Young Architects Program competition. "We didn't think previous pavilions used the whole space," says Soliz Paz. "We said, 'let's approach it as we do in Mexico.'"

Rather than place a single object in the middle of the courtyard, Escobedo Amaral and Soliz Paz's design utilizes the tie holes in the concrete walls to weave a colorful canopy over the entire space, evoking a Mexican street market. The scheme includes the requisite customary water elements, including a sand-covered "beach," mist nozzles, and a wading pool for happy partygoers. It's a clear departure from past installations, which have been made of everything from water filtration tanks to corn-smut bricks.

The jury—which included MoMA's director, Glenn Lowry, and chief curator of architecture and design, Martino Stierli, plus PS1 director Klaus Biesenbach—was impressed with the proposal, and Escobedo Soliz Studio was announced the winner in February, the first Mexican winner in the competition's 17-year history. "Using the wall's rebar was not only ingenious, but it suggested that it was possible to intervene in a sensitive way," says Sean Anderson, associate architecture curator at MoMA. "We're not looking at it, but experiencing it."

After the temporary pavilion opens this June, the pair will begin work on a house for Escobedo Amaral's brother in Tepic, Mexico. They will also organize a workshop with other young Mexican architects before Soliz Paz heads to Delft University of Technology this fall for a master's degree in urbanism. But instead of dissolving their partnership, they have opted to divide and conquer: Escobedo Amaral will continue to develop their Mexican projects, while Soliz Paz will enter European competitions.

Though thrilled by their recent recognition, Escobedo Amaral and Soliz Paz want to take their time to develop as a practice. They draw inspiration from modernist heavyweights like Luis Barragán, Louis Kahn, and Alvar Aalto but daydream and watch films to get ideas for designs. First, says Soliz Paz, "we think in atmospheres more than in shapes." ■





Escobedo Soliz Studio (founders, left) won a competition for an unbuilt mobile pavilion called Mextrópoli, a tensile structure made out of a circular bamboo truss (top). While that project was designed to accommodate several venues, their schemes for the canopylike MoMA PS1 pavilion (above) and a rural Mexican church (below) are highly site-specific.

PHOTOGRAPHY: © ESCOBEDO SOLIZ STUDIO

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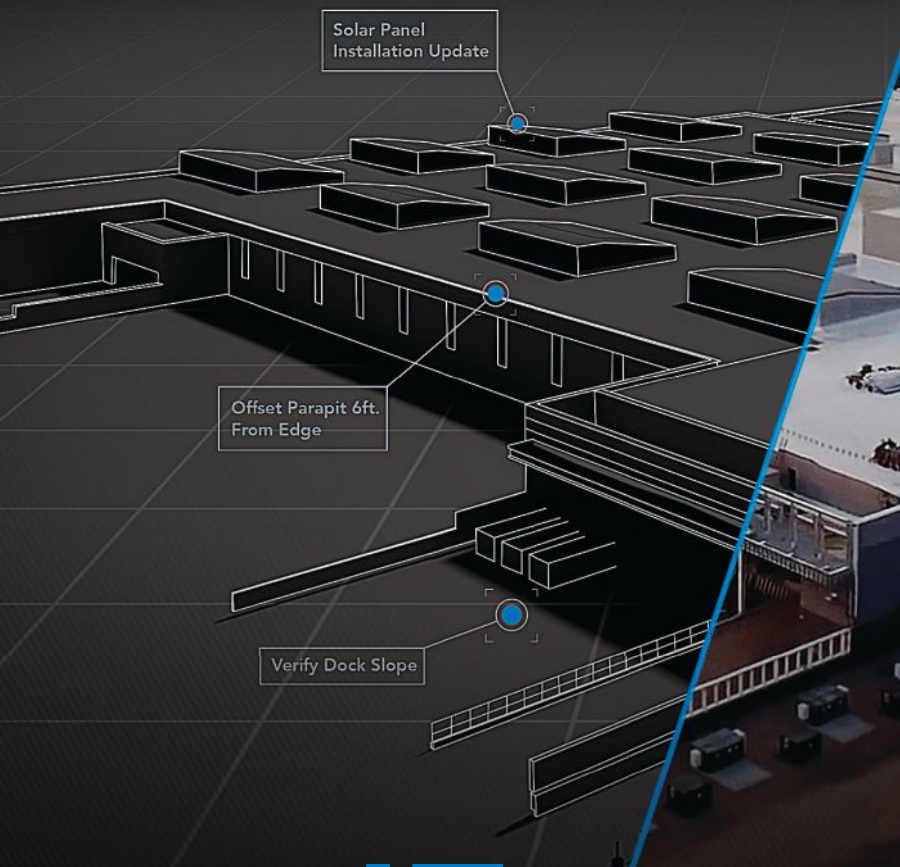
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A new book and exhibit examine the experimental architecture of Japan

BY JOSEPHINE MINUTILLO



THE MUSEUM of Modern Art's latest architectural exhibition, *A Japanese Constellation*, is neither a retrospective-like presentation nor a comprehensive look at contemporary Japanese architecture. It is, as its name suggests, a group show. The architects represented include Pritzker Prize–winners Toyo Ito and SANAA, and the rising stars in their orbit.

Organized by Pedro Gadanho, former curator of contemporary architecture at MoMA, the show explores the "radical aesthetic attitude," as Gadanho calls it, of this group.

On view through July 4, *A Japanese Constellation* cannot help but have a generational aspect. It opens with the work of Ito, who, at a youthful 75 years of age, is not only the senior member of this cluster but also its pedagogic leader. Kazuyo Sejima—both her and Ryue Nishizawa's independent projects are exhibited in addition to their collaborative work as SANAA—spent several formative years in Ito's office in the early 1980s. The youngest members of the group—Sou Fujimoto, Akihisa Hirata, and Junya Ishigami—all in their early 40s, point to Ito's Sendai Mediatheque, completed in 2001, when each of them was just beginning their architectural careers, as a transformative work and towering influence.

Models and drawings for that building, with its treelike multifunctional columns, are on display along with dozens of others by the six architects, in a series of gallery spaces separated by layers of diaphanous fabric scrims. The effect of those veils, onto which photographs of the buildings—both completed and under construction—are hazily projected, is to create an ethereal space that evokes the architecture presented within it.

That emphasis on lightness, and the integration of building and landscape, however, and the childlike quality of many of the models on display, belie the complexity of these groundbreaking buildings. Catch a glimpse of construction shots of Ito's National Taichung Theater in Taiwan, for instance, as photos of that project rotate on the linen-like partitions, and you can't help but be struck by the immense clusters of curving rebar that fill its bell-shaped, sprayed, and poured-concrete walls.



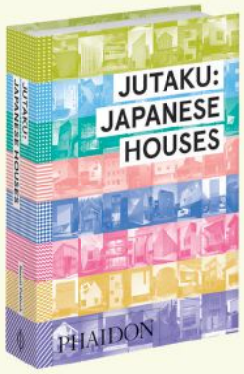
Toyo Ito's Meiso no Mori Municipal Funeral Hall (2006) in Gifu, Japan (above), and Junya Ishigami's Kanagawa Institute of Technology Workshop (2008) in Kanagawa, Japan (left).

The work of the younger architects continues to push boundaries. In Ishigami's design for the Multipurpose Plaza for Kanagawa Institute of Technology, a thin, curving steel roof will span column-free over nearly 50,000 square feet. Hirata's use of mathematical algorithms and geometric patterns found in nature as the basis for his bold structural designs references his work in Ito's office, where he was involved in the early designs for the Taichung Theater.

The exhibit ends with Home-for-All, a reconstruction project involving Ito, Hirata, and Fujimoto, following the 2011 Japan earthquake and tsunami. It demonstrates not just the experimental but the social values in the work of this group. ■



151 Tunnel House, a 940-square-foot residence by Makiko Tsukada built in 2011 in Suginami-ku, Tokyo Prefecture, sits on an 890-square-foot lot.



Jutaku: Japanese Houses, *by Naomi Pollock, AIA. Phaidon, 2015, 512 pages, $24.95.*

By Miriam Sitz

NAMED FOR the conventional Japanese word meaning "house," Naomi Pollock's book surveys the "wonderful, as well as the weird" residential architecture of Japan. The seasoned architectural writer (and RECORD's special international correspondent) provides cultural and historical context in an introductory essay, explaining how factors in Japan like high real-estate values, "sunshine laws" (mandating that a certain amount of natural light reaches the ground), strangely shaped sites, and off-street parking regulations influence the way architects and clients approach building homes. Organized by geographic region, the colorful tome highlights one house per page, devoting many pages to the Kanto region, which includes Tokyo. Small infographics on every page show the size of each house relative to others in the book, as well as the ratio of building footprint to site. ■

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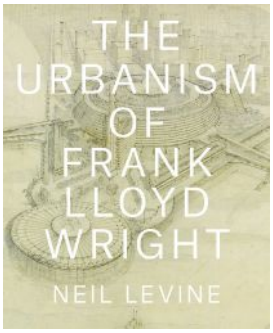
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Cities in the Mist

The Urbanism of Frank Lloyd Wright, *by Neil Levine. Princeton University Press, December 2015, 464 pages, $65.*

Reviewed by Craig Whitaker

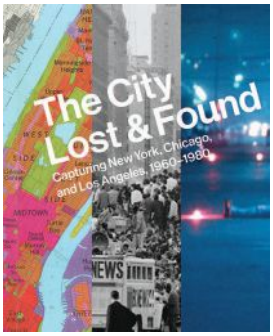


THIS IS a beautifully crafted study of Wright's place in the history of urbanism in the first half of the 20th century. Levine, professor of art and architecture history at Harvard, uses "urbanism" to refer not just to cities but to projects for multiple owners, multiple architects, and built over time. He examines Wright's provocative ideas, ranging from a project in downtown Pittsburgh to the semi-rural plan of Broadacre City to a mixed-use scheme for Baghdad. The book, replete with sketches, drawings, plans, maps, and photographs from the Frank Lloyd Wright Foundation, offers encyclopedic detail and density. Levine's exhaustive scholarship should make it required reading for practitioners and urban design students alike.

Craig Whitaker, a New York–based architect and planner, is the author of Architecture and the American Dream *(1998).*

The City Lost and Found: Capturing New York, Chicago, and Los Angeles, 1960–1980, *edited by Katherine A. Bussard, Alison Fisher, and Greg Foster-Rice. Yale University Press, January 2015, 272 pages, $50.*

Reviewed by Aleksandr Bierig



FORTUNATELY, A traveling exhibition, now closed, is well documented in a book of the same name. Assembled in its pages is a diverse selection of efforts by photographers, painters, sculptors, performance artists, architects, and planners to make sense of New York, Chicago, and Los Angeles between 1960 and 1980. This period was characterized by an array of tumultuous social and political changes. Certain transformations moved at a lurching pace, from deindustrialization, large-scale planning, and the periodic destruction of historic buildings to the flight from the inner city by the white middle class. Others hit like explosions, including demonstrations surrounding civil rights and the war in Vietnam and other political clashes. The book presents a discerning mix of work by the still famous figures (Gordon Matta-Clark, Ed Ruscha, Reyner Banham, and Paul Rudolph) and the oft-forgotten (photographer Art Sinasbaugh, the Los Angeles Asco collective, and architect Shadrach Woods). As a whole, the project is not encyclopedic but atmospheric, conveying a mood of the urgency and vitality of the American city during this period of change. As this book shows, the best work on the city reveals the lines of power woven into its social, financial, and physical fabric. ■

Aleksandr Bierig is a Ph.D. student at the Harvard Graduate School of Design and a former editorial assistant at ARCHITECTURAL RECORD.

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The Broad Museum – Los Angeles, CA
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CIRCLE 215

Renaissance Man

A longtime editor of RECORD, who was also an architect and teacher, embraced both the past and the future during the development of modernism in America.

BY SUZANNE STEPHENS



YOU MIGHT think it strange that the author of a 12-part series, "Early Architecture of Pennsylvania," in ARCHITECTURAL RECORD (1920 and 1921) would be the co-architect of the avant-garde Aluminaire House a decade later.

Yet A. Lawrence Kocher, who joined RECORD's staff in 1927, designed the prefab aluminum-paneled structure, with the Swiss émigré Albert Frey, for an exhibition in New York organized by the Architectural League and the Allied Arts and Industries Association. Only 1,100 square feet (plus a terrace and garage), the three-story residence demonstrated the possibilities of advanced technology with its luminous metal skin and a light steel-framed structure raised above the ground on slender piloti. The two architects assembled the full-size prototype inside Grand Central Palace (since demolished), next to Grand Central Terminal, where it attracted 100,000 visitors during the one week it was on display in 1931. While Philip Johnson, then a 25-year-old curator and writer, excoriated most of the League/Allied Arts show for being too establishment, he and architectural historian Henry-Russell Hitchcock included photographs of the Aluminaire House in their landmark *Modern Architecture: an International Exhibition* at the fledgling Museum of Modern Art (MoMA) in 1932. It was too cool to ignore.

Kocher started out primarily as a teacher and writer. Born in 1885 in San Jose, California, he got a B.A. in history from Stanford University (1909), then studied architecture at the Beaux Arts–oriented M.I.T. (1910–12), before going to Penn State to teach architectural history and be awarded an M.A. After Kocher was made head of its new department of architecture in 1922, he stayed until 1926, with a brief stop at the University of Virginia. By 1927, he had joined RECORD as associate editor, before becoming its managing editor a year later.

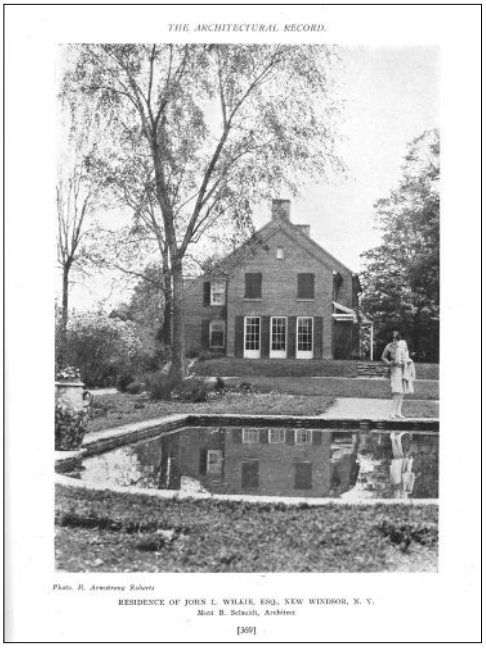
Before Kocher arrived at RECORD, he had written two articles on the American country house (November 1925, page 337; November 1926, page 385), examining the work of Mott Schmidt, Delano & Aldrich, and Wilson Eyre & McIlvaine, among others, and arguing that an American style was developing from imaginatively reinterpreted aspects of English Cotswold and Tudor, Spanish mission, and New England saltbox—you name it.

Clearly, those architects were not influenced by Le Corbusier. (The only Corbusier that RECORD featured before the late 1920s was actually named J.W.C. Corbusier, an architect of Gothic-style churches in Ohio.) But Kocher's partner-to-be, Albert Frey, did work for Le Corbusier in Paris before coming to New York in 1930, where he joined Howe & Lescaze. Then he teamed up with Kocher, who still had his day job at RECORD—so Frey would sketch, and the two meet at night for crits. Philip Johnson later commented that Frey was the designer and Kocher the front man.

Kocher didn't discover modernism upon meeting Frey. He had already begun pushing RECORD to explore the plans, materials, and methods of modernism in its pages, and he had a practice with Gerhard Ziegler designing this new architecture. The two came up with the unbuilt Sunlight Towers in New York (RECORD, March 1929, page 307), marked by strong horizontal bands of glass. Their better-known design was the poured-in-place concrete, open-plan house for mystery writer Rex Stout, finished in 1930, near Stamford, Connecticut (RECORD, April 1933, page 288, and July 1933, page 45).

While Kocher's more famous venture with Frey, the Aluminaire House, appeared in a number of publications, it did not make it into RECORD. Instead the magazine featured prototypes for low-cost farmhouses and a realized weekend house in Northport, New York, featuring the innovative use of cotton on the exterior. In addition, the two architects cowrote many textbook-type articles on planning and practice for the magazine.

The association between Kocher and Frey did not last. After designing a commercial building for Kocher's brother, Dr. J.J. Kocher, in Palm Springs (1934), Frey decided to move to that desert outpost, where he put his sole imprimatur on a number of modernist buildings. Meanwhile, in 1938, Kocher left RECORD.


THE ARCHITECTURAL RECORD

RESIDENCE OF JOHN L. WILKIE, ESQ., NEW WINDSOR, N. Y.
Mott B. Schmidt, Architect

[369]


Living room windows and terrace.

HOUSE OF REX STOUT
FAIRFIELD COUNTY, CONNECTICUT
A. LAWRENCE KOCHER AND GERHARD ZIEGLER

THE ARCHITECTURAL RECORD 47

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In the 1920s, Lawrence Kocher put together country house issues for RECORD (opposite, bottom left). While on staff he worked on a house for Rex Stout with Gerhard Ziegler (opposite, bottom right) and the Aluminaire House with Albert Frey (right). Later Kocher (opposite, top) taught at Black Mountain and designed the Studies Building in 1943 (above).

Kocher continued to practice architecture, experimenting with new materials and techniques such as his plywood pavilion executed for the 1939 New York World's Fair. In 1940, he took a job as architecture professor at the ultra-experimental school of the arts, Black Mountain College in Lake Eden, North Carolina. As early as 1934, Kocher had promoted the idea of having Gropius come to the U.S. to teach. Gropius had landed at Harvard in 1937, and Kocher advised Black Mountain to hire him and Breuer to design its new campus. When they turned out to be too expensive, Kocher began designing facilities and had faculty and students help with construction. The largest of their efforts, the Studies Building, a 200-foot-long wood-framed structure sheathed in cement asbestos board, is still used today by a summer camp for boys on the site.

Once that project was completed in 1943, the architect turned back to history: he took the post of Architectural Recorder for Colonial Williamsburg in Virginia, where he also helped in the reconstruction of the famous village and cowrote two books on the town and on Virginia. (In addition, Kocher acted as the supervisory architect for the restoration of Washington Irving's house in Tarrytown, New York.)

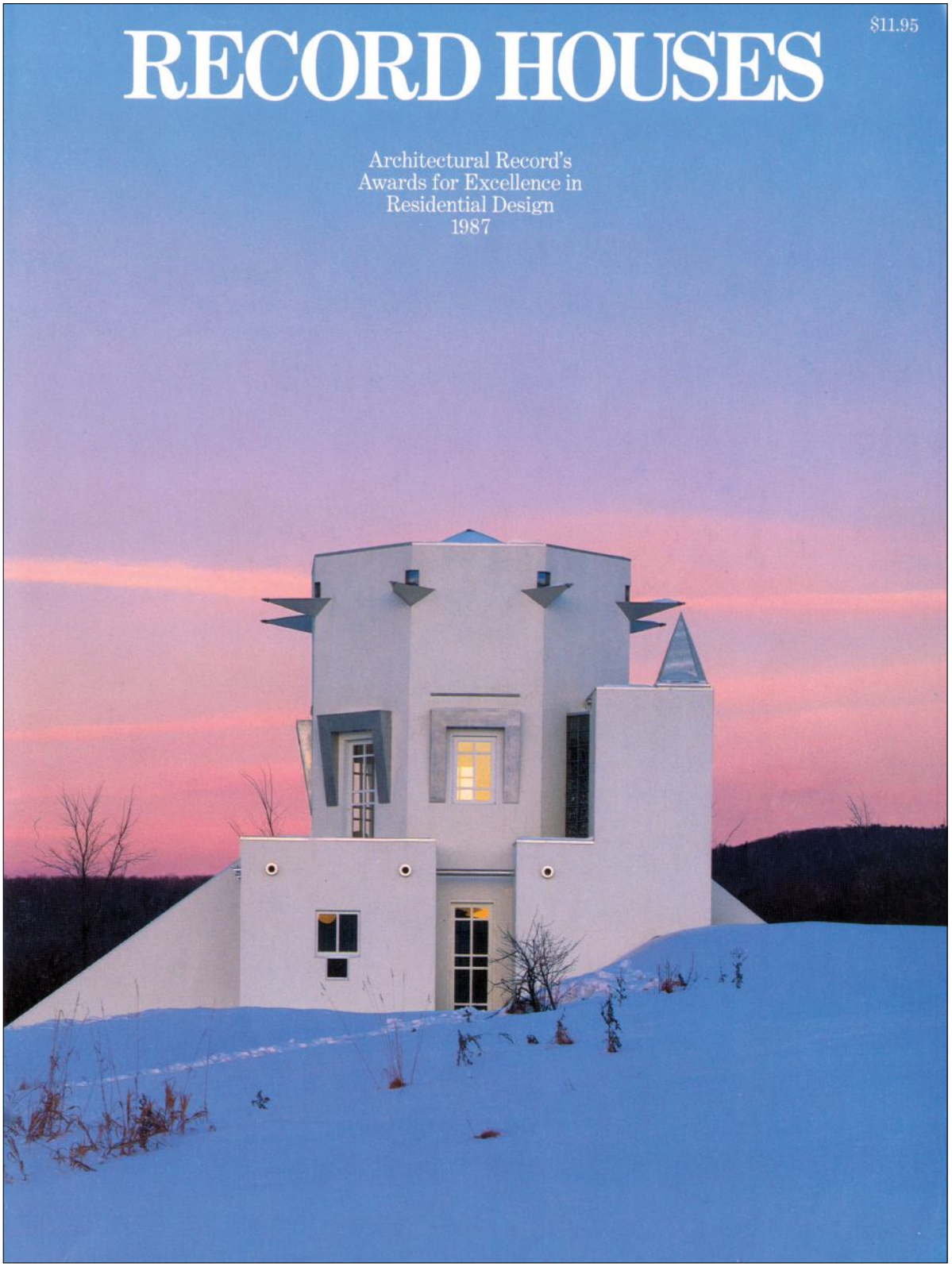
The trajectory of Kocher's career had come full circle: he had started as a historian and traditionalist, turned to modernism as an architect and editor, and then returned to history and traditionalism. He seemed to have a "both/and" inclusiveness about his architectural leanings, long before Robert Venturi coined the phrase in *Complexity and Contradiction in Architecture* (1966). Had Kocher lived longer (he died in 1969), he no doubt would have tried to restore and preserve modernism's early works, including, above all, the Aluminaire House, which today is still waiting for a home (see sidebar). ■



ALUMINAIRE HOUSE The fate of the innovative modernist prefab project, admired for its gleaming aluminum panels, has been precarious since it was first assembled in 1931—and is yet undecided. But it still exists, even if it's packed up in a trailer on Long Island. Its existence has had its ups and downs. While Kocher and Frey had designed it to be mass-produced, with a price tag of $3,200, it was not distributed. In 1931, Wallace Harrison, then working with a team designing Rockefeller Center, bought the Aluminaire House for $1,000 and moved it to his Long Island estate. Although he intended it to be a weekend place, Harrison ultimately turned it into a guest house. But it aged badly over the years. In 1986, a new owner of the Harrison compound wanted to demolish the structure. The New York Institute of Technology, guided by architect and professor Michael Schwarting, was able to save and relocate it—to its satellite Central Islip campus. When the school gave up that locale, the house was subjected to vandalism, so it was taken down. Schwarting, who has organized the Aluminaire Foundation, is searching for a home. A proposal to re-erect it in Sunnyside Gardens, Queens, didn't fly, but the current hope is that it will land in Palm Springs, California.

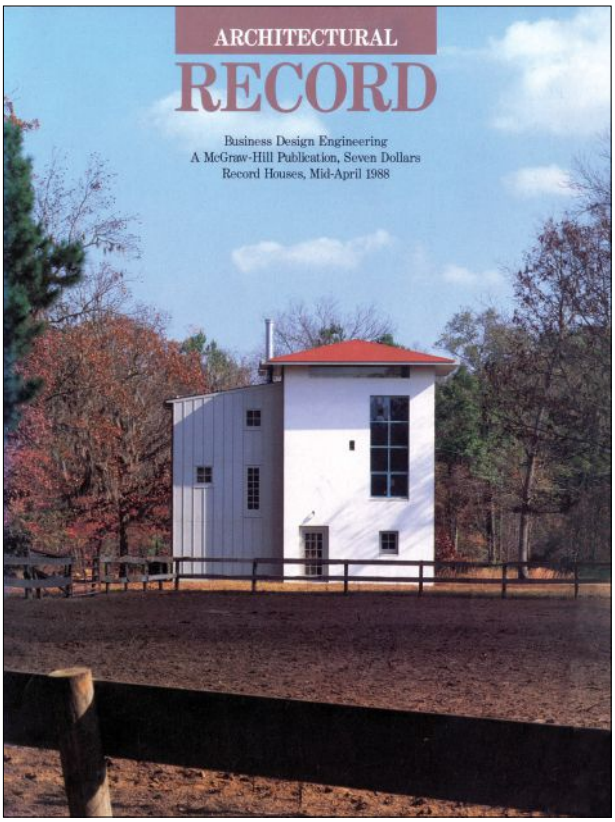
PHOTOGRAPHY: COURTESY WESTERN REGIONAL ARCHIVES (TOP, RIGHT; OPPOSITE, TOP); MICHAEL SCHWARTING (OPPOSITE, RIGHT)

Cover to Cover: Vintage Issues of Record Houses

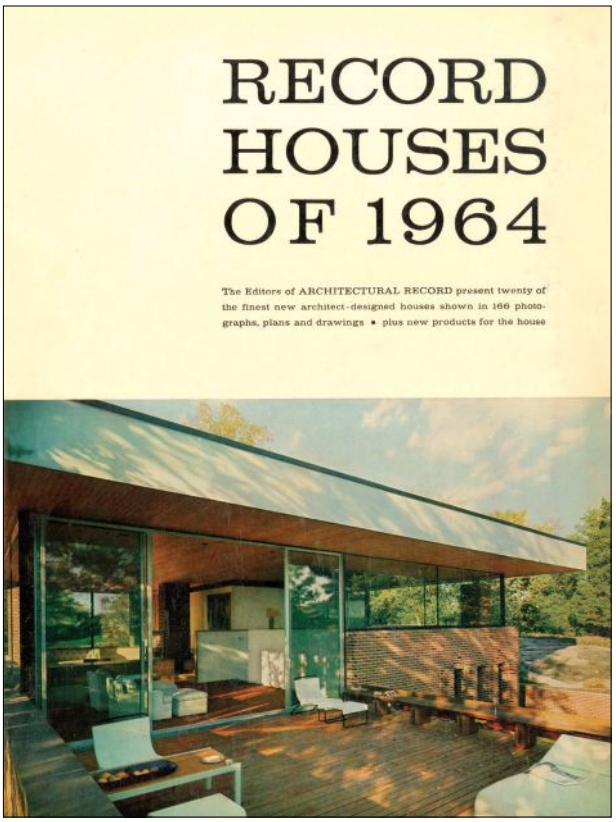


Record Houses from 1987 showcases a house by Schwartz/Silver Architects in West Stockbridge, Massachusetts.

PHOTOGRAPHY: © MICK HALES (THIS PAGE AND OPPOSITE, TOP LEFT); EZRA STOLLER ASSOCIATES (OPPOSITE, TOP RIGHT); HEDRICH BLESSING (OPPOSITE, BOTTOM LEFT); SHINKENCHIKU-SHA (OPPOSITE, BOTTOM RIGHT)



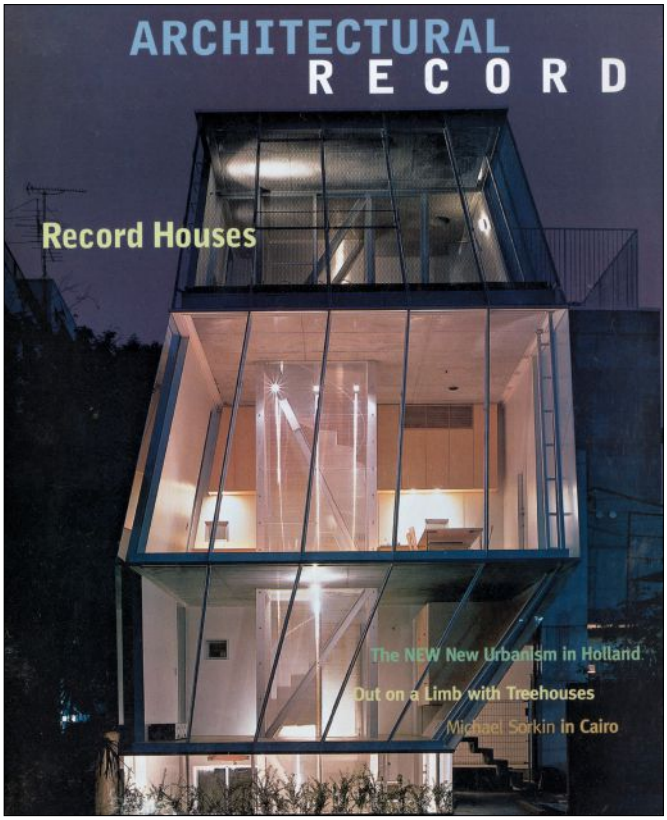
Clark & Menefee Architects, Johns Island, South Carolina, 1988.



Ulrich Franzen Architect, Westport, Connecticut, 1964.



Architect John D. Bloodgood, Des Moines, 1969.



Kazuyo Sejima, Tokyo, 2001.

Talk of the Town

Santiago Calatrava's much-delayed Transit Hub at the World Trade Center finally opens.

BY JOANN GONCHAR, AIA
PHOTOGRAPHY BY JAMES EWING

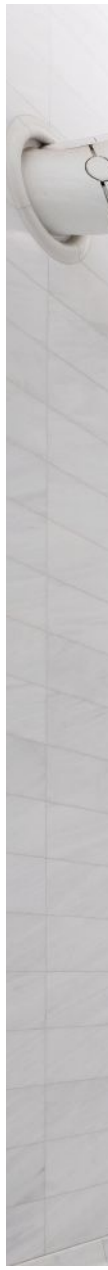
EARLY LAST month, Santiago Calatrava's World Trade Center Transportation Hub in New York finally made its public debut. But after more than a decade of construction, little fanfare marked the milestone for the much-delayed, nearly $4 billion project, which was originally slated to open in 2009 and was first estimated to cost $2.2 billion. Instead, the client, the Port Authority of New York & New Jersey, removed some of the construction barriers, giving people access to one of several street-level entry points and one end of the almost-complete main hall. The space, known as the Oculus, is the centerpiece of a sprawling network of underground connections among the World Trade Center's office towers and a station for the PATH train to New Jersey, which the agency says will serve 100,000 commuters per day.

The hub is expected to be more complete later this spring, when some of its 365,000 square feet of retail space is fit out and a



The elliptical and cathedral-like Oculus, which has a 330-foot-long skylight, is supported by gleaming white steel ribs that soar 160 feet. Retail spaces, which ring the hall's perimeter on two levels, have been fully leased but are not yet open.





The hub has a tight site between Rogers Stirk Harbour + Partners' 3 WTC tower rising to the south (above and right) and Bjarke Ingels's 2 WTC planned for the lot just to the north. An underground passage (opposite) leading west employs an architectural language similar to that of the Oculus, with bonelike steel structural elements.

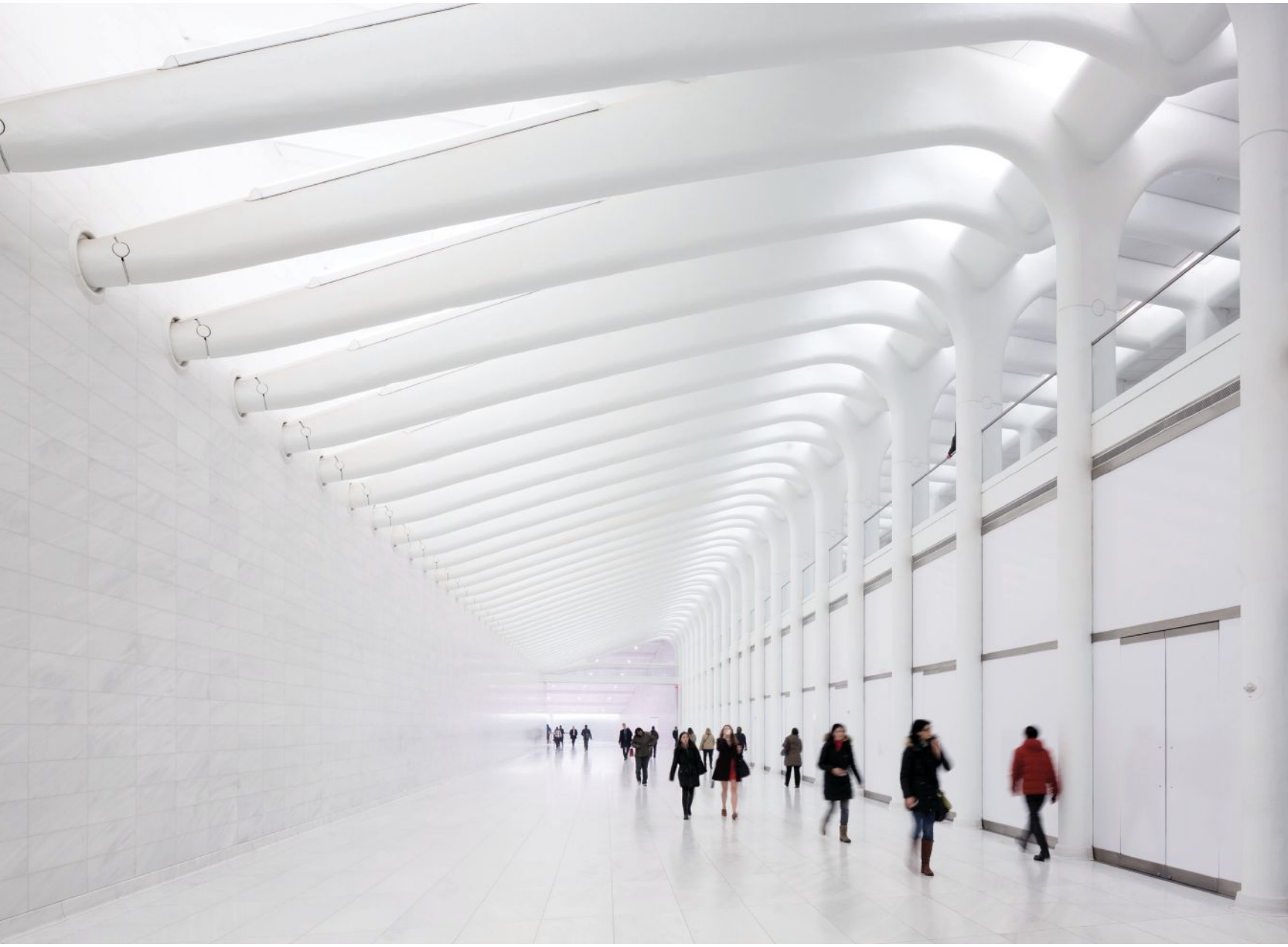
350-foot-long pedestrian tunnel running east will open, linking the World Trade Center (WTC) with the Fulton Center and its 11 subway lines.

As an explanation for the ballooning price tag and the delays, the Port Authority says that the hub's initial budget and timetable were set even before the design was complete. But other factors contributed, as numerous news outlets have reported. One example: a subway line that runs through the site had to remain operating throughout the course of the project. Another was a mandate that the 9/11 Memorial Museum be completed in time for the 10th anniversary of the terrorist attacks. That meant that the memorial plaza, which is part of the hub's roof, had to be built before the station below it, complicating construction on the already congested and challenging site.

But putting the debate about cost and schedule aside, even in its not-quite-finished state, the Oculus's interior should wow people who pass through the elliptical, cathedral-like space. Its gleaming white steel ribs soar 160 feet, and during daylight hours the sun streams between the bone-shaped structural elements and down from a 330-foot-long central skylight, making it hard to believe that the pristine white marble floor sits two stories below the street.

One part of the hub that is more fully functional is an underground concourse leading west to the former World Financial Center (now Brookfield Place), open since late 2013.





The pedestrian passageway relies on a language similar to that of the Oculus, with white marble floors and walls and arched steel elements that provide the 460-foot-long, double-story passageway with a graceful rhythm. Its electric illumination, which bounces light off the ceiling, emphasizes the structural components and gives the whole space an inviting, almost ethereal, glow.

Unfortunately, this subterranean drama doesn't translate into coherence above grade. Outside, the Oculus ribs transform into outstretched wings that in Calatrava's first schemes pivoted to open the glazed skylight. Although the operable skylight survived value engineering, the movable wings did not. But kinetic or fixed, these elements are too literal—intended to suggest a flying dove. And the building, which has been likened to everything from a stegosaurus to a porcupine to a Thanksgiving turkey carcass, is ill at ease on its site. Not only is its biomorphic form at odds with the fiercely rectilinear geometry of its surroundings, but the spiky creature is hemmed in with little breathing room—wedged between Rogers Stirk Harbour + Partners' 3 World Trade Center rising just to the south and Bjarke Ingels's 2 WTC planned for the plot to the north. Its asymmetrical wings seem almost to have been clipped to fit the building onto its site. From the outside, the Oculus reads more like a beached whale than a bird about to take flight.

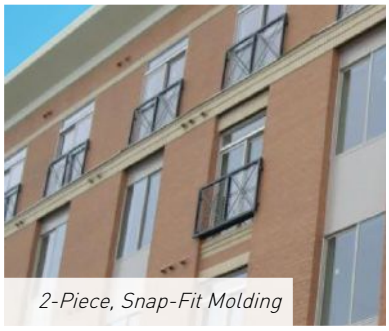
This aboveground idiosyncratic expression may be forgiven, however, if the Oculus's interior is used as Calatrava envisioned it. He has referred to it as a "piazza for New York," where people will gather or sit with a cup of coffee, in addition to circulating through on their way to the train. Yet with so little of it accessible, and with none of the retail that will ring its perimeter open, it is hard to know if commercial activity will compete with or complement his grand civic gesture. ■

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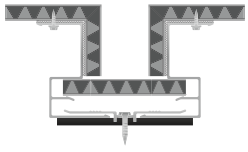
2-Piece, Snap-Fit Molding



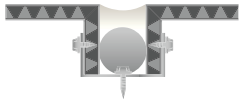
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Trading Places

At the 2016 Kitchen and Bath Show, residential designs took an industrial turn, while contract pieces looked increasingly refined.

By Julie Taraska



Ignis

Choice is the operative word with this dimmable handmade pendant, which is offered with LED or traditional E26 base lamping and in a variety of wood frames, finish options, and shade sizes (walnut with 24" distressed-brass shade, shown). The fixture's 96" field-adjustable cord also makes Ignis suitable for sloped ceilings.

cernogroup.com

CIRCLE 102

UPR 503

Adjustable to fit surfaces up to 34" high, this undercounter refrigerator features LED lighting, pullout glass shelves, and telescoping drawers that self-retract slowly and quietly. Stainless-steel railings and partitions allow users to customize storage, while the door-on-door technology allows cabinetry panels to be affixed with ease.

liebherr-appliances.com

CIRCLE 101





IKON Apron-Front Sink

Made from Silgranit, a scratch- and stain-resistant granite composite, the latest model of this undermount sink offers a 10"-high apron and 9¼"-deep bowl; it's also heat-resistant up to 536° F. The custom-fit grid handles the weight of pots and pans, providing added cushioning for users. Available in three neutral hues.

blanco.com

CIRCLE 103



Verge LVS-Series

Providing individual fixtures and handwashing space for up to three users, this basin comes in 15 shades and numerous Greenguard-certified materials, including composite quartz and bio-based resin. All models have a class-A fire rating and are stain-, scratch-, and heat-resistant.

bradleycorp.com

CIRCLE 104

60" Pro Grand Range

This 5'-long unit offers six burners and a host of customizable options inside and out, including side-by-side convection ovens and a professional grill with 12" griddle (combination shown). The range's proprietary venting technology reduces back-wall temperature, making it the only model this size that can be installed nearly flush against a surface.

thermador.com

CIRCLE 105



products kitchen and bath



Litze Bath Collection

Inspired by the Bauhaus and its mix of industrial and artistic elements, these fittings are substantial in feel and handcrafted in look. They come in four metal finishes; select pieces are available with teak accents. The showerheads also feature an integrated TempAssure thermostatic valve that incorporates volume and temperature control in one fixture.

brizo.com

CIRCLE 106



Residential Collection

Wood grain, quartz, and grass cloth are among the patterns featured in Formica's latest laminate collection. Three new large-scale designs—as well as four textile-like options—also suit hospitality and contract use. All (including Weathered Cement, shown) utilize the company's EliteForm technology for increased scratch- and stain-resistance.

formica.com

CIRCLE 107



SO613 Shower Head

This flush-mounted fixture adds chromotherapy to the showering experience, running a choice of custom or preset color programs designed to relax or energize. The user controls everything via a waterproof remote, which also allows him to toggle among three spray options. The showerhead can be paired with a variety of thermostatic mixers and hand showers.

mgstaps.com

CIRCLE 108



Aquatunes

Immune to the effects of flowing water and steam, this Bluetooth speaker may be mounted inside a shower or set atop a counter. The unit, a marriage between Philips' audio engineering and Grohe's fittings expertise, streams eight hours of music from a smartphone or tablet located up to 25' away. Comes with a water-resistant charging base.

grohe.com/us.

CIRCLE 110

One-Piece with Stealth Technology

This ultra-high-efficiency toilet uses just 0.8 gallons per flush—the least water of any single-flush toilet on the market. The flapper-less design reduces leakage, while the patented hydraulic technology minimizes operational noise.

niagaracorp.com

CIRCLE 109



ArcheType™ X

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http://www.kimlighting.com/typex/

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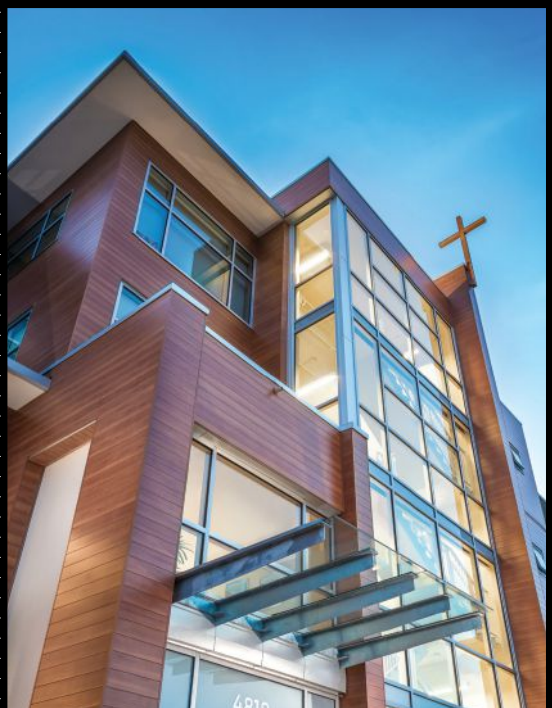
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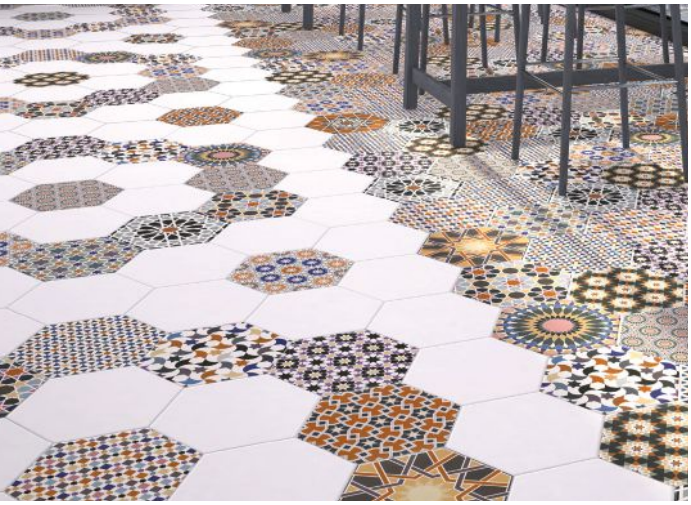




Cevisama 2016

Employing advanced glazing, printing, and production technologies, Spanish tile manufacturers created fashion-forward looks for the annual trade fair in Valencia, Spain.

By Linda C. Lentz



Andalusí

Hexagon formats are among the geometric shapes making a comeback, along with 1970s-era ethnic and handcrafted looks. Case in point: Realonda's 11" x 13" porcelain Andalusí tiles, whose Moorish influences and hues evoke Mozarabic art. Perfect for floor and wall applications, the 28-pattern series coordinates with the company's solid Opal collection.

realonda.com

CIRCLE 112

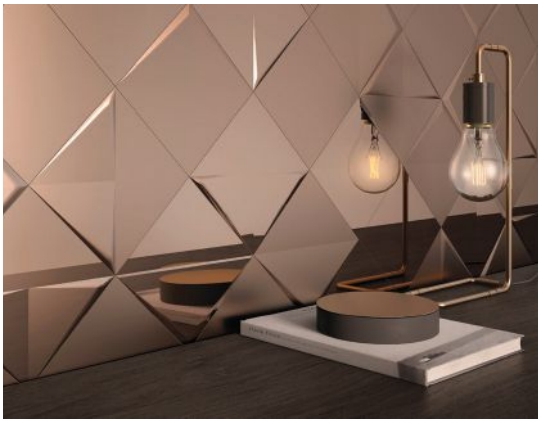


Inuit

Part of Vives's avant-garde Fusion collection, this striped wall tile comes in gray-and-white and black-and-white—with coordinating graphic motifs and lemon-yellow accents available. Options include the playful Miskito (shown), whose lovebirds on a wire create a remarkable 3-D effect.

vivesceramica.com

CIRCLE 111

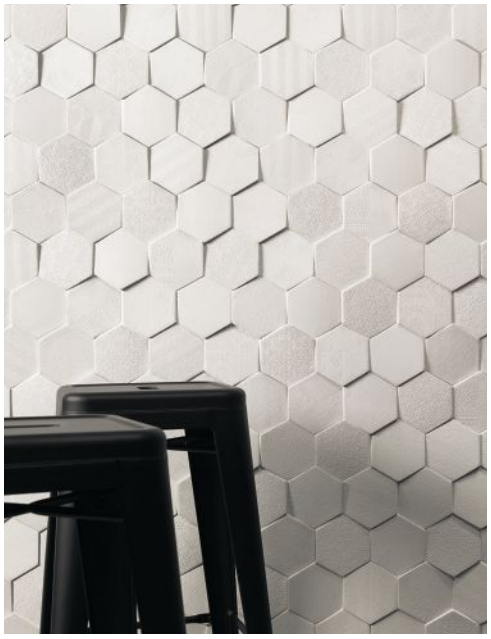


Aleatory

Alea created Aleatory's metallic surfaces via physical vapor deposition (PVD), an extremely durable finishing process that prevents faucets from tarnishing and scratching. The 6"-square ceramic reliefs come glazed in a choice of gold, silver, or copper (pictured); matte and glossy finishes are available.

aleaexperience.com

CIRCLE 113



Art

Natucer adds breadth to the hexagonal form with Hex, a unique porcelain wall tile from the company's Art series. Embossed with one of five delicately textured micro-reliefs, these 5" x 4" tiles are ramped—from 0.4" on one edge to 0.6" on the other—resulting in a charming, irregular wall surface that flirts with light and shadow. Neutral shades include gray, beige, and white.

natucer.es

CIRCLE 114

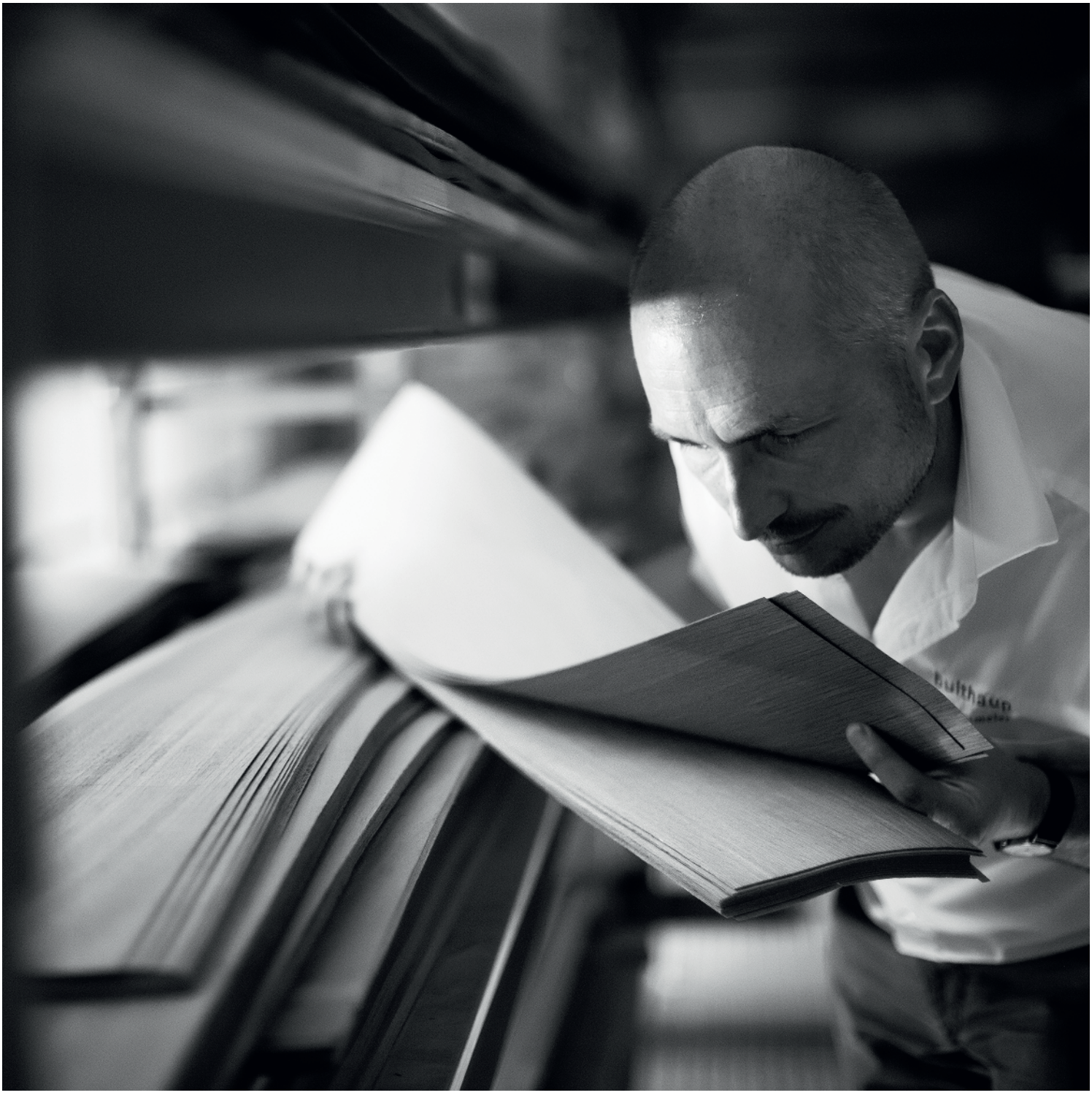


Carousel

Tile resembling white brick was a common motif at Cevisama. Poliedra, from Saloni's Carousel collection, features a micro-brick texture embossed onto a pristine facade. Available in matte or gloss finishes, the rectified 12" x 36" ceramic wall tile offers a visually seamless surface.

saloni.com

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RECORD HOUSES 2016

For this year's Record Houses issue, we discovered a particularly rich assortment of residential projects. Some are distinguished by an imaginative response to a natural setting, whether the desert, the mountains, wooded hills, or along a waterfront. Others were designed to fit discreetly into dense urban areas—bowing deferentially to the architectural context on a tight site or, in one case, an unusually expansive property in the city. The houses boldly express such materials as poured-in-place concrete, wood planks, glass and steel, or fieldstone. Sizes and budgets range from surprisingly small to very large; forms vary, from an elongated rectilinear volume to a twisted vertical shape. And while the architects look to different modes of vernacular expression—even the gable—they refer as well to their historic predecessors: Le Corbusier's legacy is clearly alive, even in Tokyo, and Mies, of course, looms over Chicago.

PHOTOGRAPHY: ©FERNANDO ALDA CALVO

SEVILLE HOUSE, SEVILLE, SPAIN
HARALD SCHÖNEGGER AND INMACULADA GONZÁLEZ

Lincoln Park Residence | Chicago
Tigerman McCurry Architects

DESIGN FOR LIVING

An architect works with a sprawling one-of-a-kind lot to create an urban oasis for a family.

BY BETH BROOME

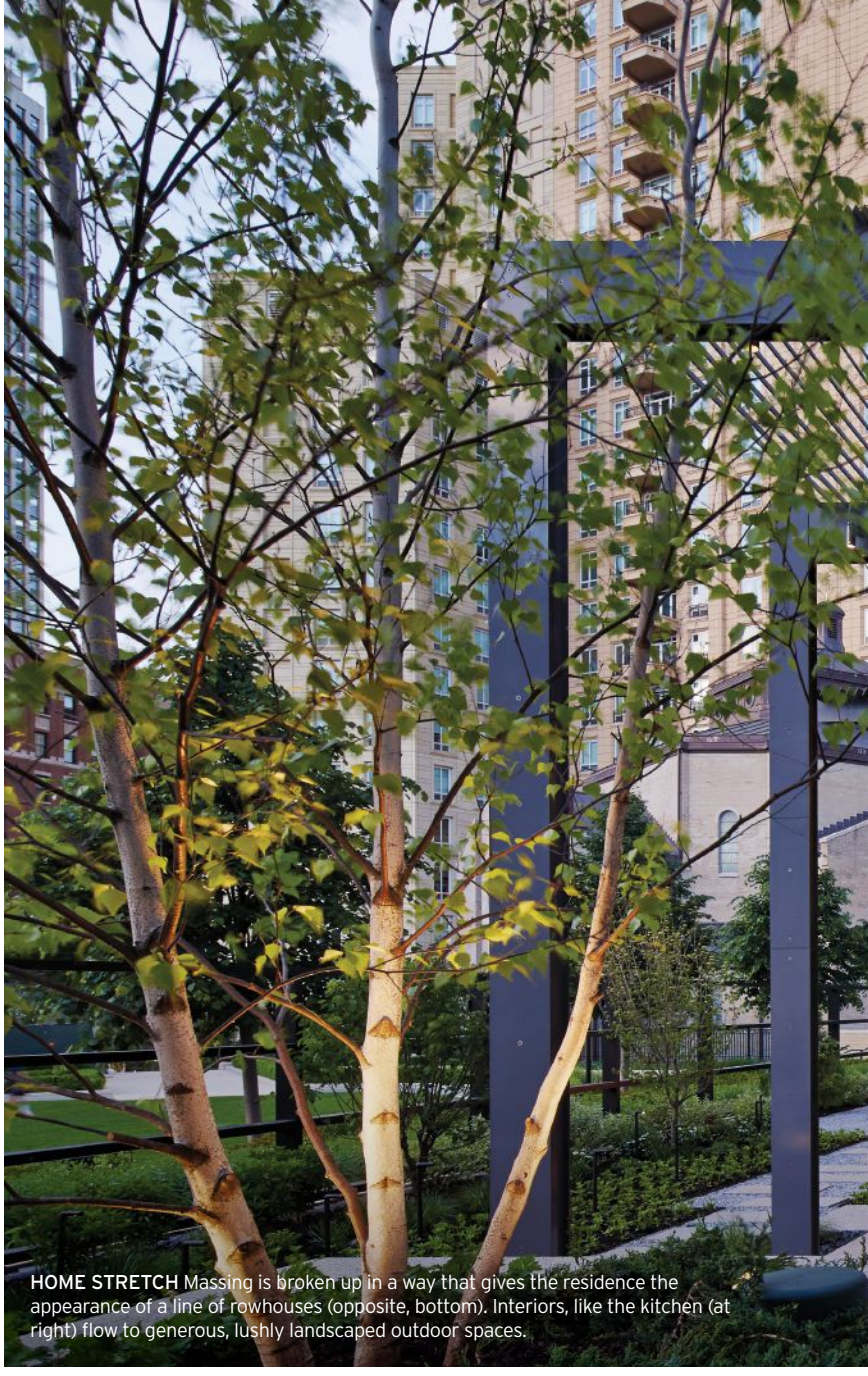
PHOTOGRAPHY BY STEVE HALL

At first blush, it is not clear that the low-slung glass-and-metal building is a house at all. Marching determinedly over its 216-foot-wide lot on a quiet residential street in Chicago's Lincoln Park, the structure is an enigma—its mass and materials belie its domestic program. Around it, the coveted leafy neighborhood on the city's North Side just west of Lake Michigan, largely rebuilt after the Great Chicago Fire of 1871, is an eclectic collage of historic row houses, interspersed with courtyard apartment buildings and high-rise condos. Surprisingly, this newcomer fits in by standing out and, while projecting a cool urban demeanor, shelters a welcoming family home within.

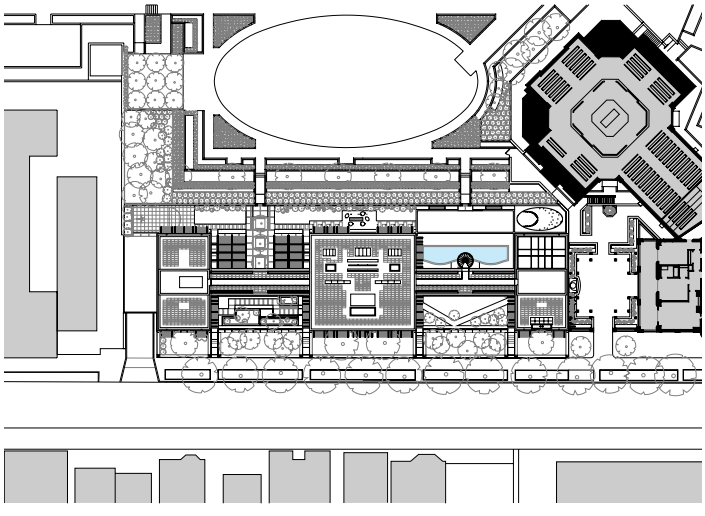
The clients' story is a familiar one. For years, the couple occupied a three-bedroom condominium in the area. As their family grew to include three children, they embarked on a search to find more space. They were not willing to leave the neighborhood. "We have deep roots here," says the wife, noting that it was important for her children to continue walking to their school and for her husband to jog early every morning in Lincoln Park, for which the area is named. When a local hospital was razed to make way for a condo-townhouse complex, the clients approached the developer. And here's where the story becomes extraordinary: for their future home, they proposed purchasing eight adjacent townhouse lots next to a historic chapel (which remained) and surrounded by residential towers.

Finding an architect was easy. The couple had a longstanding relationship with Margaret McCurry of Chicago's Tigerman McCurry Architects, who had designed their apartment interior and vacation home. "In terms of articulating what we wanted from this house, it was like shorthand," says the wife. "Margaret knows us very well, and we know her very well, so we were able to skip over a large part of that initial discussion clients usually have with their architects about what their tastes are." The wife is more of a modernist; the husband, not so much; what they agreed on was a contemporary structure of glass and steel, with a warm interior. What McCurry (who runs her firm with her husband, Stanley Tigerman) gave them is a Chicago-modern house with a classical parti. "Stanley and I have been called classical modernists, modern classicists," notes the architect.

Working with the long, shallow site and the grid of the eight lots (which sit atop two levels of underground parking for the condomini-



HOME STRETCH Massing is broken up in a way that gives the residence the appearance of a line of rowhouses (opposite, bottom). Interiors, like the kitchen (at right) flow to generous, lushly landscaped outdoor spaces.

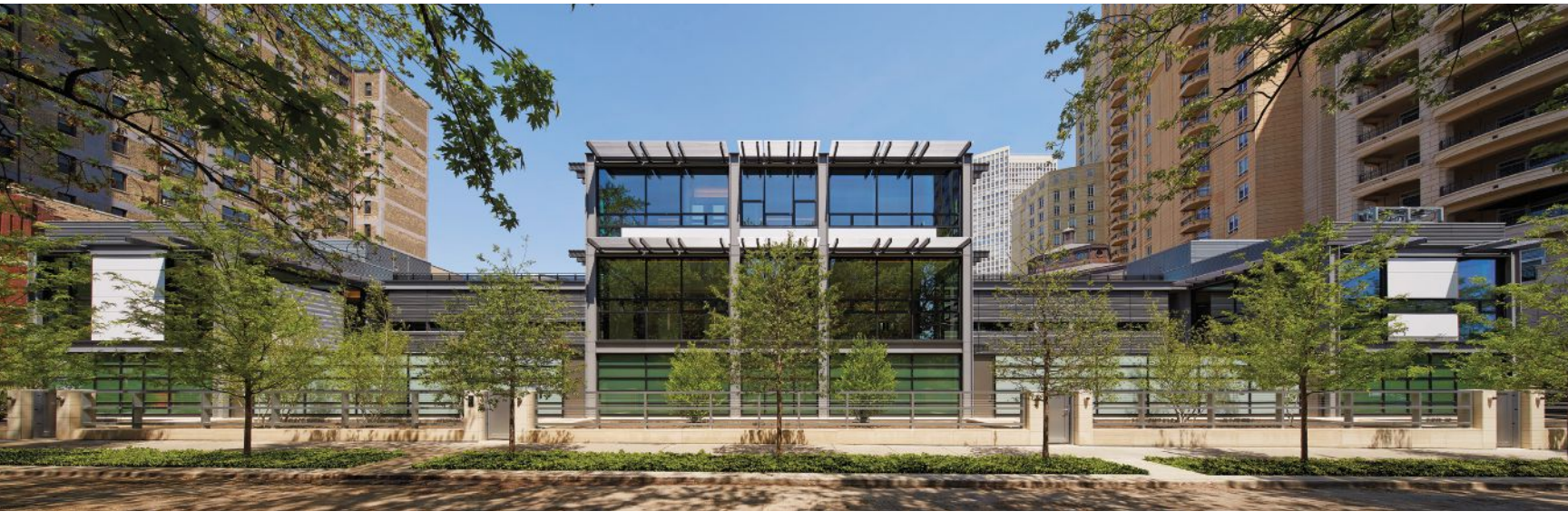


SITE PLAN

0 30 FT.
10 M.

PHOTOGRAPHY: © STEVE HALL/HEDRICH BLESSING









WELCOME SIGN A Bertoia sculpture sits behind seating and greets guests passing through the double-height entry (left). Monolithic structures conceal closets. A high-performance curtain wall connects the understated living room (above), with its zinc-clad columns, to the streetscape beyond. Stanley Tigerman designed the aluminum coffee table.



ums), McCurry envisioned a Palladian plan. An 8,000-square-foot central volume serves as the heart of the house, containing a gracious double-height entry and stair, the living room, a sprawling open kitchen that spills into a dining area, and a modestly scaled bedroom zone on the top level. This structure is flanked by courtyards and wings to the east and west—connected by glazed bridges screened with zinc louvers—that hold ancillary areas: guest quarters, his and hers studies, a lap pool and fitness center, and playrooms. The project did not originate with a huge list of required components; instead, the program evolved as the design progressed. For example, raising a portion of the lower floor 4 feet accommodated mechanicals but also enabled the addition of the pool and a Japanese bath (both heated by PVs on the green roof), which the client had always wanted.

In her extensive residential work (most of which has been in suburban or rural settings), McCurry plays with regional elements. “I’ve always enjoyed transforming the vernacular

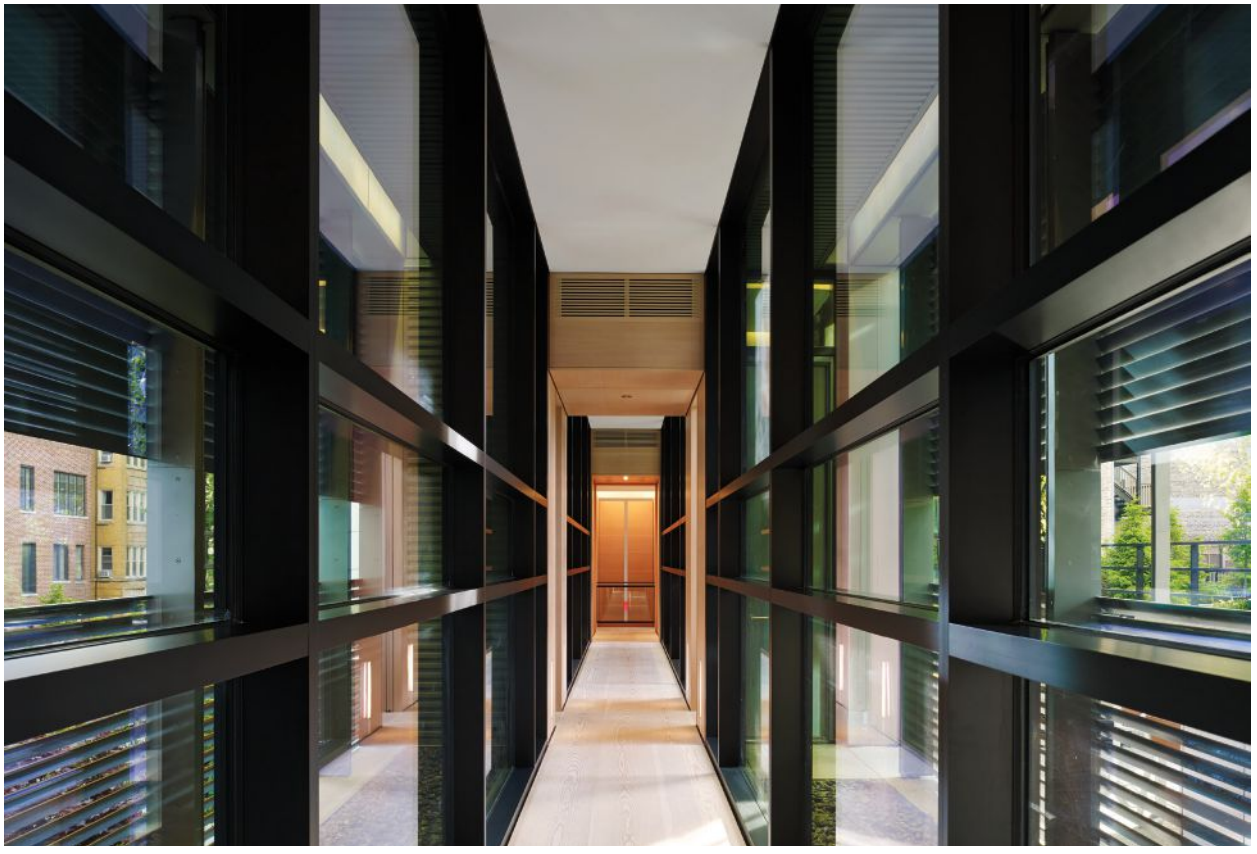


into something that has a sense of history and roots but isn't exactly something you have seen in the neighborhood," she says. "The client wanted a modern house, and I very much wanted to do a modern house—I was raised at Skidmore, Owings & Merrill for 11 years." With its steel, glass-and-aluminum curtain wall, expressed structure, and strong grid, the building is unmistakably Chicagoan.

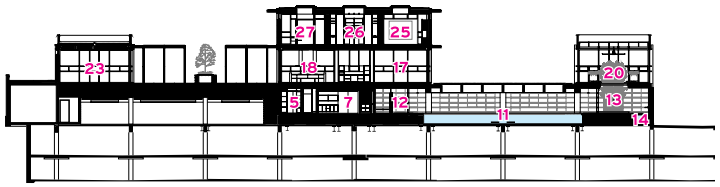
While some may not envy the prospect of cozying up to an architecturally uninspired development such as the adjacent one that replaced the hospital, an indisputable benefit was that the new house was exempt from Lincoln Park's stringent landmark restrictions. As part of the larger project, however, construction of the house could not proceed without the developers' approval. No doubt, they would have preferred something more historicist, in the vein of the Frenchified confection—with its mansard roof and parterres—next door. Indeed, the original drawings included a tan terra-cotta rainscreen, in deference to the condo tower. But, as a sizable investor in the overall project, McCurry's clients did have some sway, and won over the developer with the current design, which also breaks down the scale and reduces the big house's street presence by creating the illusion of a row of individual townhouses. In addition, the team had to agree to fast-track construction, which was completed in three years.

As the clients had hoped, the interiors have a soft side. Abundant use of glass admits generous daylight and connects inhabitants to the outdoors, in particular the picturesque historic streetscape to the south. At the same time, the east and west wings shield the house's core, diminishing the presence of the neighboring towers, and zinc louvers and translucent laminated glazing afford ample privacy. Living areas in the main structure flow, creating an informal air, while the bedrooms upstairs are tightly choreographed in an intimate cluster. "We are a family and want to hang out together most of the time," says the wife. However, some of the ancillary spaces feel puffy and suggest programming that was created to fill space. A restrained material palette brings things down to earth. While rugged exterior steel and zinc continue

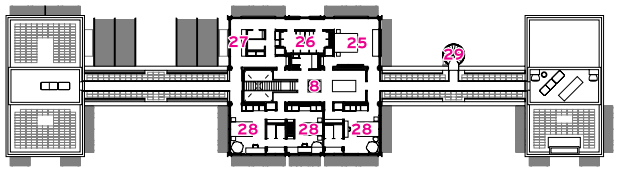




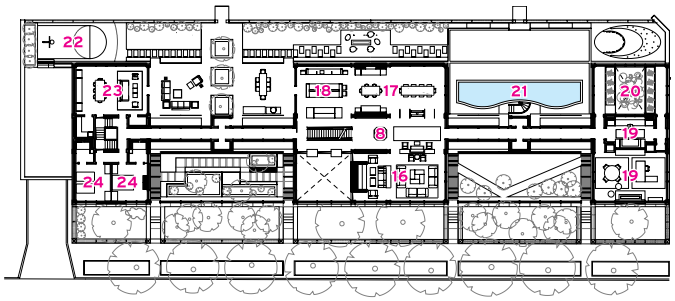
STAIRWAY TO HEAVEN
A perforated-steel stair at the house's core (opposite) is dramatized by LEDs running up its middle. The kitchen (above) spills into dining areas, including one outside. A glass-enclosed bridge (left) connects the central volume to the guest wing and is shielded by zinc louvers.



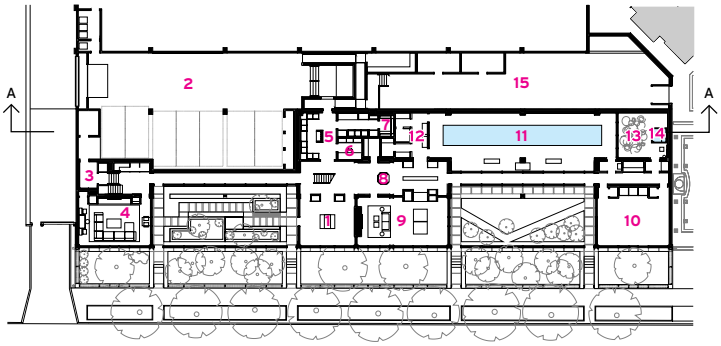
SECTION A - A



UPPER-LEVEL PLAN



PARK LEVEL PLAN



STREET-LEVEL PLAN

0 30 FT.
10 M.

1 MAIN ENTRY
2 PRIVATE GARAGE
3 GUEST ENTRY/STAIR
4 FAMILY ROOM
5 MUD ROOM
6 HOUSE MANAGER
7 WINE ROOM
8 ELEVATOR
9 PLAYROOM
10 FITNESS
11 LAP POOL
12 POOL DRESSING ROOM
13 BAMBOO GARDEN
14 JAPANESE BATH
15 MECHANICAL
16 LIVING ROOM
17 DINING
18 KITCHEN
19 OFFICE
20 CONSERVATORY
21 SKYLIGHT/ REFLECTING POOL
22 HALF BASKETBALL COURT
23 GUEST GREAT ROOM
24 GUEST BEDROOM
25 MASTER BEDROOM
26 MASTER DRESSING
27 MASTER BATH
28 CHILD'S BEDROOM
29 EXIT STAIR



inside, Douglas fir on the floor and walls, fabric ceilings in the public areas, as well as straightforward elements like drywall and white-painted millwork imbue the spaces with a domestic quality.

The trend of choosing to stay in the city to raise children has gained a lot of traction in recent years. This house certainly proposes a new way of doing it, albeit one that's available only to a select few and doubtful to be repeated any time soon. Here McCurry has deftly drawn on precedent and worked with a complex urban setting—one that is in part distinctly Chicagoan and in part anonymous—to create a unique family home. ■

credits

ARCHITECT: Tigerman McCurry Architects – Margaret McCurry, partner in charge; Jeremy Hinton, Rachel Oleinick, Melany Telleen, project architects

ENGINEERS: The Structural Shop (structure); db/HMS (m/e/p); Sound Specialists (av/shade integration); Titan Security Services (security)

CONSULTANTS: Artemisia Landscape Design (landscape); Architecture + Light (lighting); Threshold Acoustics (acoustical)

GENERAL CONTRACTOR: Bulley & Andrews

CLIENT: withheld

SIZE: withheld

COST: withheld

COMPLETION DATE: June 2015

SOURCES

STEEL FRAME: Scott Steel

CURTAIN WALL: Kawneer, Chicago Heights Glass

PAINTS AND STAINS: Benjamin Moore

DOUGLAS FIR FLOORING: Dinesen

SHADES: Lutron



CITY SANCTUARY
The master bedroom (left) is intimately scaled, its plain white walls animated by a fireplace and a Corbu tapestry. A skylight admits daylight, as do ample windows, whose arrangement allows for privacy. A Japanese bath (opposite) looks out to a bamboo garden.

Saint-Ange Residence | Seyssins, France | Studio Odile Decq

CABIN IN THE SKY

A house for a visiting artist offers seclusion and inspiration.

BY SUZANNE STEPHENS

PHOTOGRAPHY BY ROLAND HALBE

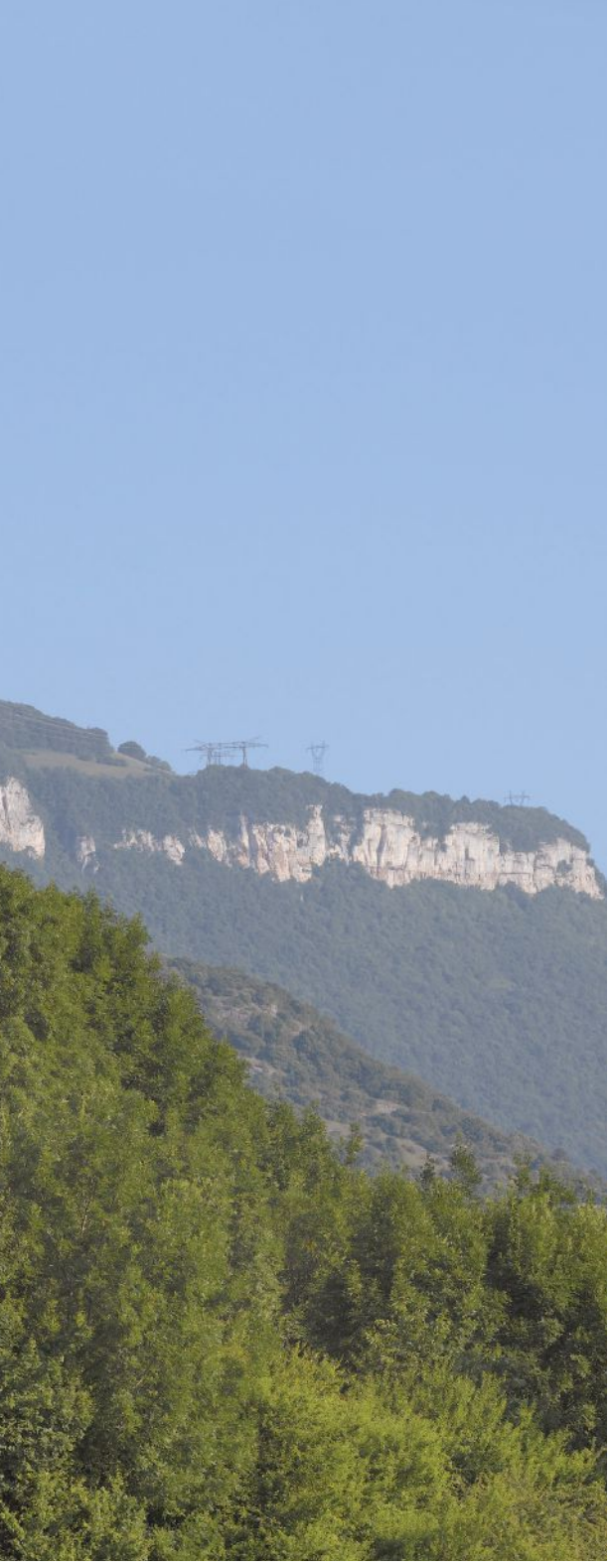


Architects may start their careers designing houses, but after they add heftier projects to their portfolios, many are quick to jettison the smaller stuff. This is hardly the case with Odile Decq, who bases her office in Paris and has garnered acclaim for the quietly assertive FRAC Bretagne art museum in Brittany (RECORD, June 2013, page 192) and the daringly muscular GL Events Headquarters in Lyon (RECORD, July 2014, page 66).

While Decq's work unequivocally proclaims a fascination for defiantly large steel-and-glass volumes and cantilevers, she recently completed a wood cottage for an artists-in-residence program in southeastern France. As she explains, "I am always interested in something I haven't done before, such as an artist's house, which requires providing a workplace along with temporary living quarters." This is also her first wood structure: "I was thinking of an alpine forest," she says. "The wood gives the building a quiet tone."

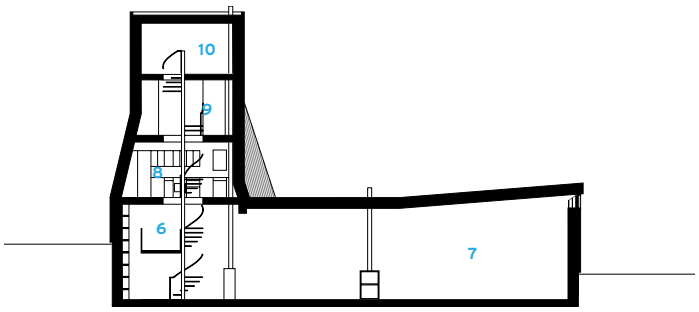
Intriguingly, the indomitable FRAC Bretagne played a role in Decq's winning the small, invited competition for this residence and studio on the property of the art collector and patron Colette Tornier, in the community of Seyssins, just outside Grenoble. Tornier knew the FRAC: she and her selection committee (which also decides on the grants to artists) felt Decq's approach captured the spirit of the place.

The simple cabin is intended to house artists on a rotating basis for three or four months. At the end of the residency, they are given an

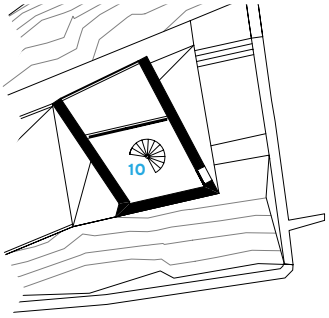




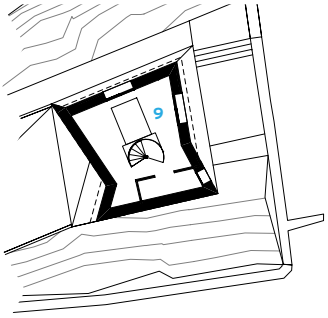
ROOMS WITH A VIEW Odile Decq tucked a small four-story artist's residence on the edge of an art collector's estate (above). The angular house (right) is clad in asphalt-finished pine over a concrete base to fit in discreetly with the landscape and not disturb the view from the main house.



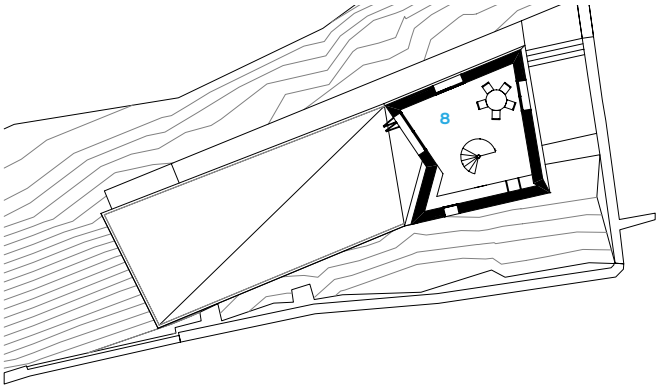
SECTION A - A



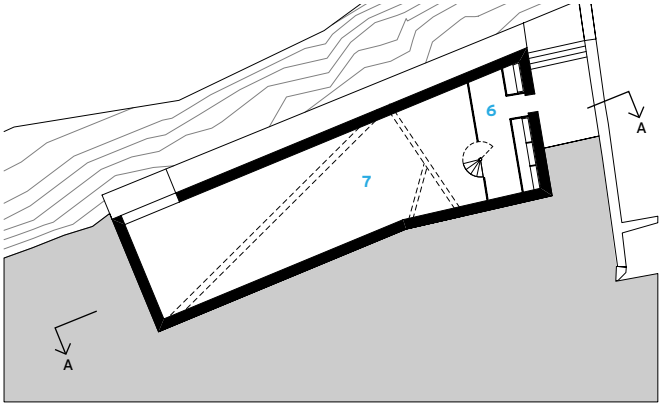
THIRD FLOOR



SECOND FLOOR



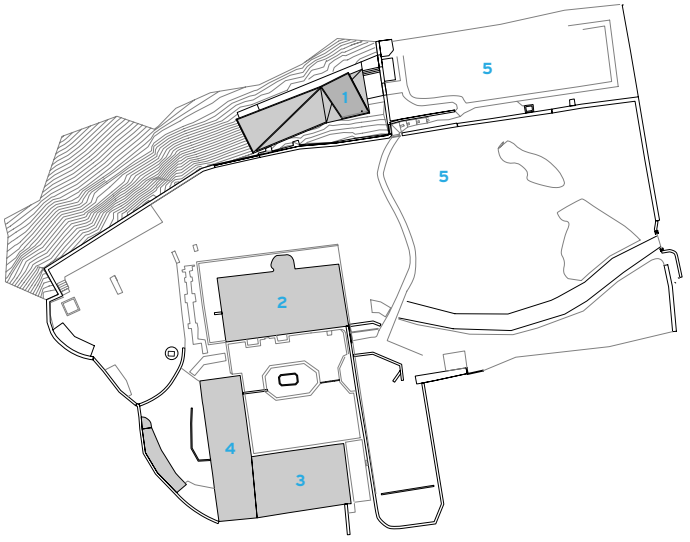
FIRST FLOOR



ENTRANCE LEVEL

0 16 FT.
5 M.





SITE PLAN

0 50 FT.
15 M.

1 ARTIST'S HOUSE
2 MAIN HOUSE
3 PRIVATE MUSEUM
4 GUEST HOUSE
5 SCULPTURE GARDEN
6 ENTRANCE
7 STUDIO
8 LIVING AREA
9 BEDROOM
10 STUDY



ARTFUL LODGING
The entrance to the house is down a path in a tiered sculpture garden and through a stone wall (opposite). Inside the front door, a mezzanine looks down into the studio (left). On the top level is a projecting balcony (above) with a panoramic view of the mountains. The 1,075-square-foot studio is embedded in the slope.







REACHING UPWARD A spiral stair connects the stacked rooms clad in pine. The living room (left, below) has a Yona Friedman chair near the sliding door to the deck on the studio roof. The metal stair coils past the bedroom (above). At the stair's terminus is the study (top, left). Decq, who designed the interiors, included an egg-shapd bird shelter she created in 2012.

exhibition (plus catalogue), and one of the works created during the stay becomes part of Tornier's collection. So far one painter/sculptor, Maude Maris, has completed a stay; Lionel Sabatté, also a painter and sculptor, is currently ensconced in the quirky but inspiring retreat.

Perched on the crest of a hill, the cottage faces out to the historic town of Grenoble and the French Alps. Up the slight slope lies Tornier's bosque-like park, studded with sculptures from her collection, and the rest of the Tour Saint-Ange estate, which includes a 17th-century farmhouse, expanded into a villa in the 20th century and filled with art. Tornier even converted the barn into a private museum for the collection—which includes artists such as Lilian Bourgeat and Wang Du—and filled an adjoining guest house with its overflow.



In designing the residence, Decq sought to create a monolithic sculpture—one that turns its back on the rest of the compound, looking out to the town in the valley and the jagged mountains beyond. "I hoped the artists would be inspired by the view," she says. "Also, Colette and her family didn't need to have a strong intrusion in their views of the outdoors. Nor did I want to compete with the existing architecture."

By creating a timber over poured-concrete structure, Decq crafted a hulking, hovering object that resembles a very large birdhouse. Its raven hue results from her choice of an asphalt finish for the local pine, which the architect notes is used to waterproof the wood hulls of boats. (She designed a boat in 2006.)

The rooms in the tower are stacked atop each other and canted, to create enclosing walls with oblique lines that perceptually extend the building's height. These three stories jut up from a horizontal one-story base for the 1,075-square-foot art studio, which is embedded in the hillside. By forging this plinth in concrete, Decq bolstered the existing retaining wall at the rear of the house, where the slope extends up to the sculpture garden.

Because of the slope, the entrance to the house is accessed from a lower sculpture garden on the side. Indoors, you find a mezzanine overlooking the studio, where clerestory windows illuminate this solid backdrop for the work being created.

A coiling steel stair takes you up to a small living/dining area and kitchen, 325 square feet in area, which in turn opens on to a flat deck on the studio's roof. The stair continues up to the bedroom and bath, also 325 square feet, and then on up to a small study (160 square feet) where a hooded balcony projects out over the landscape. "Here, terminating the axis of the spiral stair," says Decq, "is this belvedere with a panoramic view above the trees."

Composite board and natural pine clad the interior surfaces, creating a feeling of a vernacular cabin—yet a cabin containing artful pieces of furniture, such as Yona Friedman chairs, and a small egg-shaped hanging migratory-bird shelter that Decq designed in 2012. The object's two holes encourage the birds to constantly move in and out, says Decq, and not stay for too long. The artist's residence functions much the same way. Functional and intimate, it still inspires with its striking presence and a long view out. ■

credits

ARCHITECT: Studio Odile Decq – Odile Decq, principal for architecture and interior design

ENGINEERS: BATISERF (structural); Axess Technologies (m/e/p)

CONSULTANTS: Bois Conseil (structure); Joly Bois (carpentry); EDMI (electricity and plumbing); SORAETEC (structural work)

GENERAL CONTRACTOR: SEMA

CLIENT: Colette Tornier

SIZE: 1,990 square feet

CONSTRUCTION COST: $506,000

COMPLETION DATE: May 2015

SOURCES

FLOORS: Leno Floor System

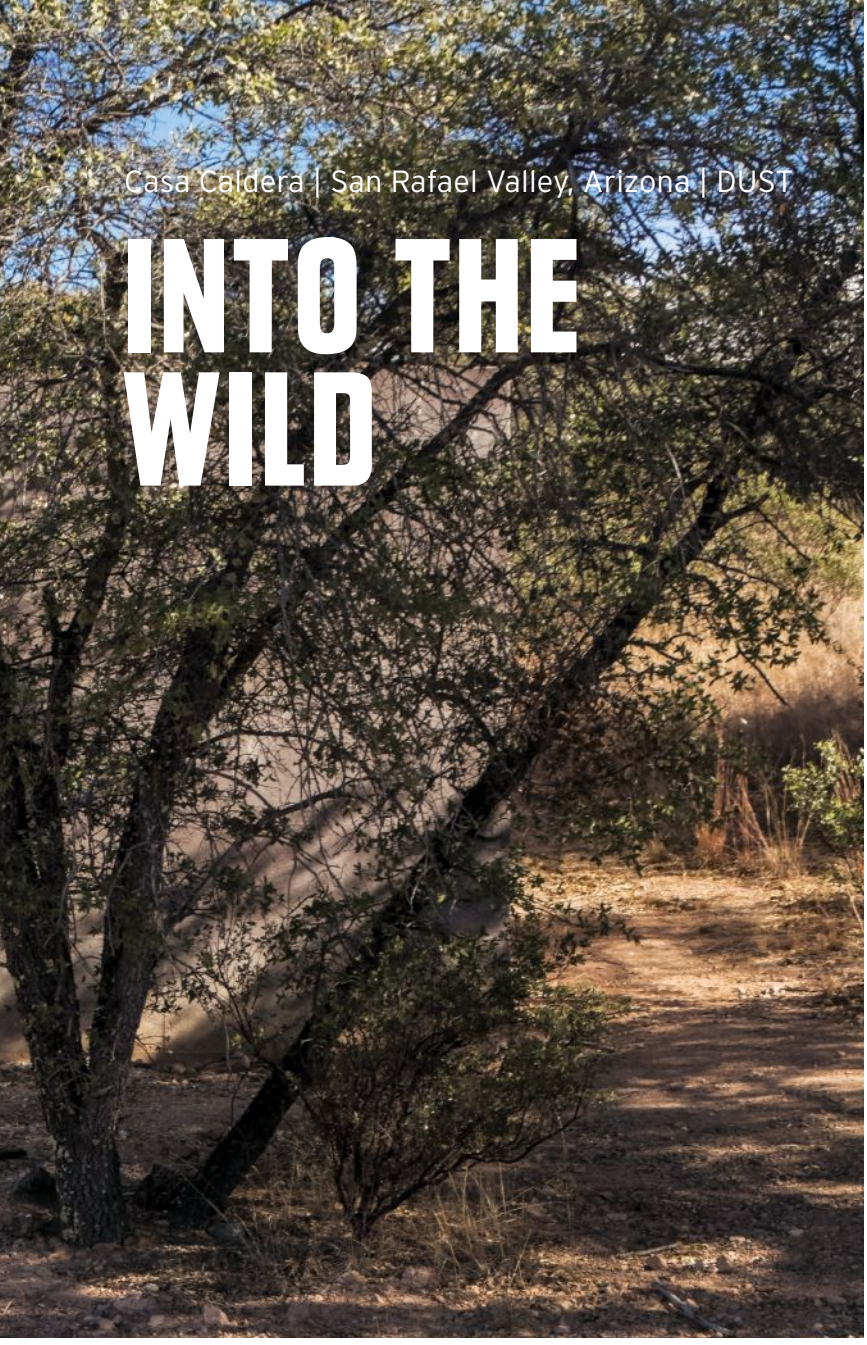
WOOD WINDOW FRAMES: CORMO

LIGHTING: Delta Light



PHOTOGRAPHY: © JEFF GOLDBERG/ESTO

EARTH TONES
Casa Caldera's monolithic form is made of a volcanic aggregate similar in color to the surrounding terrain, blending into the landscape (left). Designed to minimize solar gain and maximize airflow, the self-sustaining house has small windows and a *zaguán*, or central entry corridor, that circulates cross breezes through the interior when its bifold doors are open (above).



Casa Caldera | San Rafael Valley, Arizona | DUST

INTO THE WILD

An off-the-grid refuge made from volcanic cinder blends into its remote Western setting.

BY LINDA C. LENTZ

PHOTOGRAPHY BY JEFF GOLDBERG

Overlooking Arizona's expansive San Rafael Valley, at an elevation of 5,000 feet, the tiny house known as Casa Caldera doesn't provide the easy escape of a typical vacation getaway. What this 1,060-square-foot, off-the-grid retreat does deliver are stunning views and the opportunity for an adventure that begins with getting there. Roughly half of the two-hour drive southeast from Tucson cuts through mountains and goes off-road, across spectacular high-desert grasslands, past grazing cattle, and up into forested slopes.

The earth-hued house was built with scoria, a porous cementitious material, also referred to as lava concrete, that takes its name from its primary component, a lightweight volcanic cinder, similar in color and makeup to the surrounding terrain. (Geologically, the region was once the site of a *caldera,* or large volcanic crater.) The building is not visible from the road. Tucked just below the crest of a hill and camouflaged by Emory oaks, Casa Caldera emerges from the landscape slowly, but only after you park your vehicle at an informal "carport" and activate the house's sources of electricity and hot water—a self-contained portable solar system and a propane tank.

The enigmatic site and gradual approach to it were calculated by architect Cade Hayes and his partner Jesús Robles, principals at the Tucson-based design/build firm DUST, to heighten the anticipation of arrival. It also satisfies the client's brief for a secure, discreet home that won't disturb the viewshed of neighboring properties.

An adventurous Ohio-born winemaker who counts falconry as one of his hobbies, the 40-something owner purchased the land from family planning to sell the remains of a larger ranch. His budget was modest, his needs simple: a modern, self-sustaining refuge, with outdoor space, where he could commune with nature and plant a small vineyard for pleasure. Because the house would be left empty for long periods of time, he also wanted the ability to shut it down when he was away.

Given the remote location and budgetary limitations, the designers convinced the client that building with scoria would be the best option for the project. The construction process is similar to rammed earth, a system DUST had employed for its first house (Tucson Mountain Retreat, RECORD, April 2013, page 72), but it is less expensive and has superior thermal properties due to its porosity. Additionally, because it is less dense, scoria can be easily reinforced with rebar as needed.

Hayes and Robles responded to the Southwest vernacular with a contemporary variation of a traditional Spanish Colonial Zaguán house. According to Hayes, this compact style, bisected by a central corridor (or *zaguán*) that leads from entrance to patio, would be easy to close up. "But we were also thinking about ventilation," he says. Since the house would have no mechanical cooling or heating, insulation and cross-ventilation were key factors in the scheme. The *zaguán* creates a pressure differential. "So as long as you have access to cool breezes, it will pull the air through," Hayes explains.

The one-story monolithic structure, slightly off axis to capture views, is sited to benefit from airflow and solar heat gain. The *zaguán* was configured with rugged weathering-steel bifold doors at either end, which can be left wide open to extend the living space in good weather or shuttered. The crew added a layer of foam insulation within the building's 18-inch-thick scoria walls and installed five operable windows, set half-

1 HOUSE
2 OPEN PATIO
3 PARKING
4 BACK ROAD
5 FOOTPATH



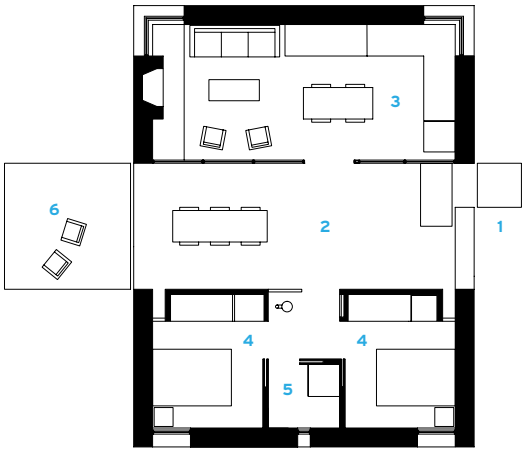
SITE PLAN



View additional content at architecturalrecord.com.



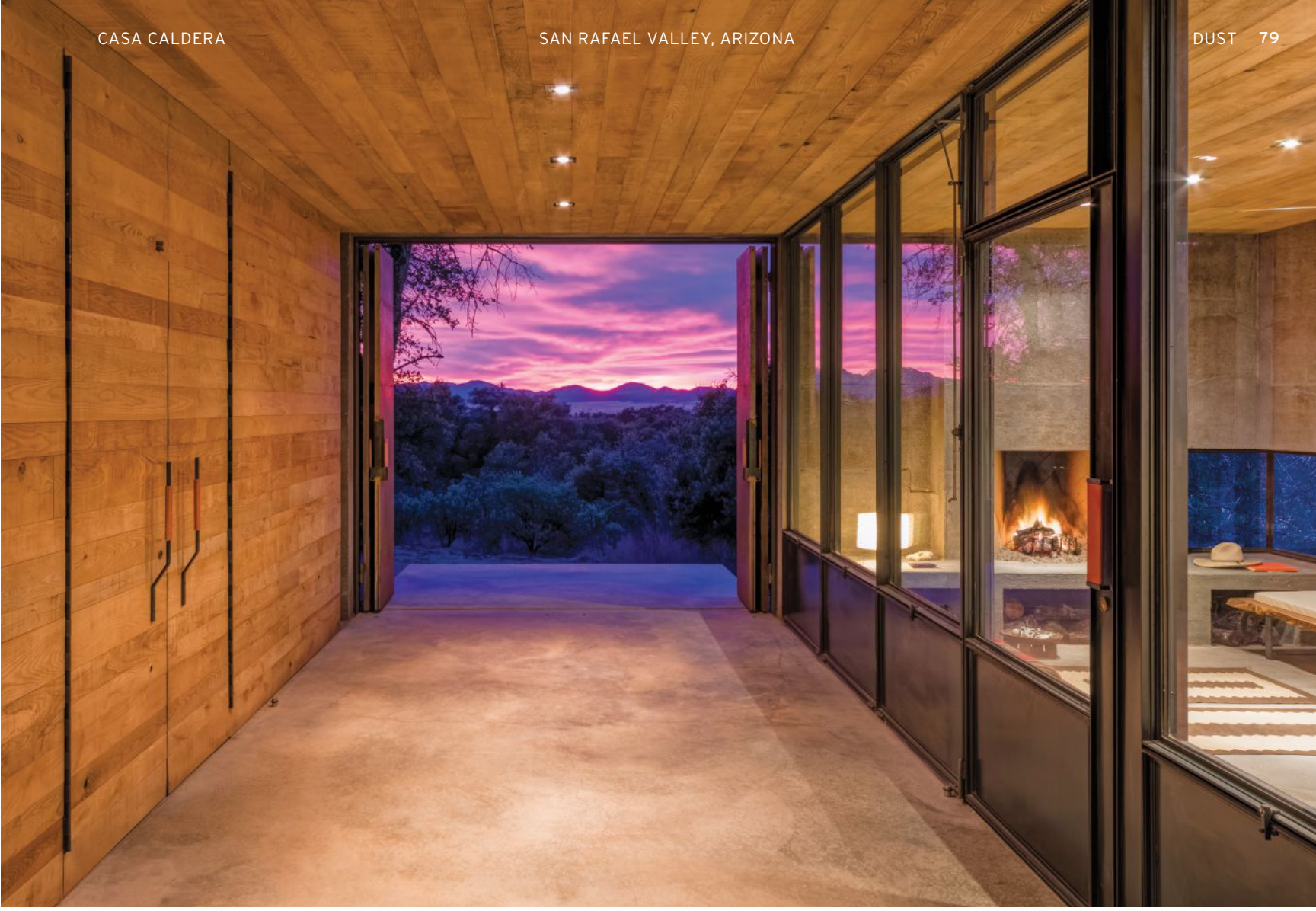




FLOOR PLAN

0 6 FT.
2 M.

1 ENTRANCE
2 *ZAGUÁN*
3 LIVING/DINING/ KITCHEN AREA
4 BEDROOM
5 BATHROOM
6 PATIO



way back into the facade for shade. Thin, removable steel bars, horizontal rather than vertical, add an almost decorative layer of security without being obtrusive.

"The openings are small. We didn't go for the architectural move of a skylight," says Robles. "And we resisted any temptation to make design decisions just for an aesthetic. Everything is rooted to function." Still, a west-facing corner window, positioned to bring in plenty of daylight, frames a mountainous panorama. Adjacent young trees will prevent glare when they are fully grown. To water them, DUST devised a central gutter for the standing seam metal roof that directs rainwater down through the building and out toward their roots. The house is fed by a natural well, but irrigation in this semi-arid clime can be an issue, so even the septic system was configured to filter cleansed water into the rocky soil around saplings.

The interior is split into three zones, about 270 square feet each. The 10-foot-wide *zaguán* is bordered by enclosed public and private wings and opens onto a west-facing concrete patio, a place to enjoy the amazing sunsets. Wood is the primary heat source: a fireplace for the kitchen/dining/living room and a wood stove for the bed and bath area opposite, while a ceiling fan, transoms, and operable kicks (on a glass wall between the living and *zaguán* spaces) circulate the air.

The owner looks forward to spending months at a time at Casa Caldera. "My dream is to be there for several months in the fall. I can forget about the rest of the world, but it is only an hour and 40 minutes to an international airport," he says. "It's pretty special." ■

credits

ARCHITECT: DUST – Cade Hayes, principal/project architect; Jesús Robles, principal/project manager

GENERAL CONTRACTOR: DUST

ENGINEER: David Gibbens (structural)

CONSULTANTS: Lava Works Concrete – Paul Schwam (scoria); Eternity Electricity (electrical)

CLIENT: withheld

SIZE: 1,060 square feet

COST: withheld

COMPLETION DATE: December 2015

SOURCES

ROOF: Flashings

LOW-E GLASS: Oldcastle BuildingEnvelope

WOOD: Baer Joinery

PHOTOVOLTAIC SYSTEM: Sacred Power

WATER HEATER: Rinnai (tankless gas)

WOOD STOVE: Unforgettable Fire

LIGHTING: Bazz (downlights); House of Antique Hardware (controls)

VIEWFINDER
Perfectly sited to frame sunsets, the *zaguán* doubles the comfortable living area and extends onto a west-facing patio (above). Reclaimed rough-sawn sassafras clads ceilings and the wall of the private zone (above and opposite). DUST designed and fabricated the home's fenestration, hardware, and furnishings, including the steel doors and framing for the windows and glass *zaguán* wall.

Taylor Street House | Boston | SAS design BUILD

HARMONIC CONVERGENCE

In a marriage of old and new, a house achieves a happy balance for its occupants and the surrounding historic neighborhood.

BY ROBERT CAMPBELL, FAIA

PHOTOGRAPHY BY PETER VANDERWARKER

The South End in Boston is a world of intimate streets lined by brick townhouses, often with swelling bowfronts and high stoops. Most houses predate the Civil War. Among residents, the preservation ethic is strong. But preservation finds common ground with modernism in the design of this remarkable house.

Ramy Rizkalla, the owner, is an ophthalmologist with a passion for architecture that he acquired, he says, from having once lived for four years in New York, "with its strong design culture." He loves this neighborhood. But he dislikes architecture that imitates the past. He's a fan of early modernism. He likes an industrial look, with materials that are strong and bare: structural steel, raw concrete, unpainted wood, wide stretches of glass. He admires Brutalism.

In the summer of 2011, Rizkalla and his partner, Cynthia Marturano, also a doctor, acquired a privately owned lot on tiny Taylor Street, deep in the heart of the South End. They found a sympathetic designer in Scott Slarsky, who was at that time working independently and today is a director in the firm of Shepley Bulfinch Richardson Abbott. Working with Slarsky and his associate Christopher Wortley (the team behind SAS design BUILD), the couple designed their glass and steel dream house at 10 Taylor.







TWO IN ONE
In Boston's South End, a wood building dating to 1899 has been reconstructed and expanded with a new wing of modernist glass and steel (this page and opposite). An exoskeleton of wood louvers covers much of the new wing, providing shading and privacy and offering a sociable nod to its older neighbor.



But trouble began when the couple began to demolish parts of a vacant wood-frame house that occupied half the property. Neighbors rose in wrath, saying they'd never been consulted. Some feared that the building, which dated to 1899, was going to be obliterated. Others simply thought the new design was wrong for the historic neighborhood. The city's landmarks commission, which had a right of review over the wood house and its half of the site, halted the project.

Perhaps what is most interesting is not the dispute, which was predictable, but the ways in which the design began to morph. As discussion flared among the owners, the architects, the community, and the public agencies, a deal was struck. The height of the proposed house was lowered by a story, the facade was set back 6 feet, and windows were reconfigured. Most important, both the owner and the landmarks commission belatedly stated that there had never been any intention of tearing down the street facade of the old house. This facade, at least, would be saved, renovated, and incorporated into the new structure.

It was design by democracy, surely a rarity in the history of Record Houses. The resulting dwelling looks like two houses standing side by side. The left half mimics the architecture of a century ago. The right side (which was not beholden to landmark restrictions) is a modernist interloper. It's as if advocates of opposite political views were standing there holding up placards.

Visitors enter the combined dwelling through a Victorian door in the reconstructed front of the old house. It's like stepping behind a theater curtain. You can call the maneuver facade-ectomy. But that's the charm of any historic city, where old and new are so often layered in a fascinating collage.

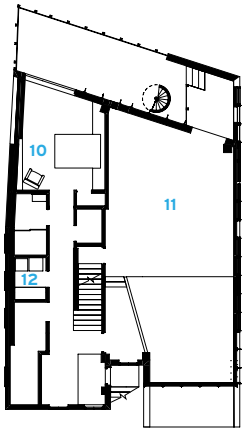
Once inside 10 Taylor, you're in the interior the owners and designer always wanted. It has the bold logic of classic modernism: loftlike spaces that flow freely into one another, materials that are exposed and celebrated, and details that are both elegant and logical. One space in particular dominates: a tall volume that rises in places to double-



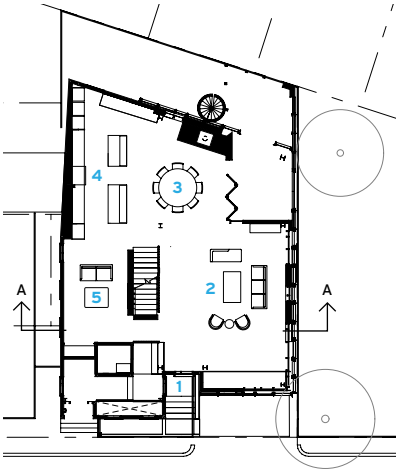


BARING IT ALL The loftlike living space (above) looks out to neighboring historic brick houses. Materials are left uncovered and unfinished, including steel framing, raw concrete walls, and a floor of end-grain reclaimed American oak. The view from the guest bedroom (right) down to the living space is typical of surprising overlooks and transparencies throughout the house.

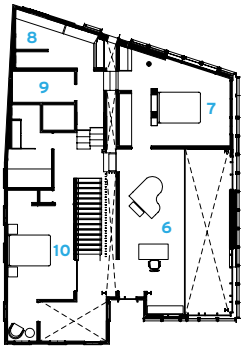




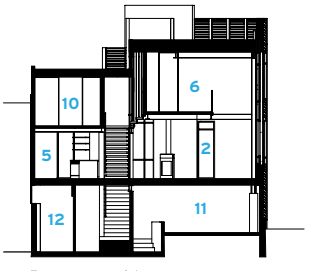
LOWER LEVEL



FIRST FLOOR



SECOND FLOOR



SECTION A - A

0 20 FT.
6 M.

1 ENTRY
2 LIVING
3 DINING
4 KITCHEN
5 DEN
6 LOFT
7 MASTER BEDROOM
8 MASTER BATH
9 MASTER CLOSET
10 GUEST ROOM
11 GARAGE
12 LAUNDRY

story height and contains the public world of the house: the entry and stair hall, living and dining space, a TV room, and an elegant open kitchen. A view to a small public park next door connects occupants to the world beyond. This interior feels more like an intimate village square than a room or suite of rooms, and immediately suggests the possibility of gathering.

Materials in the living space are raw and powerful. Muscular black steel columns rise to support steel beams overhead. The metal is strong but not aggressive and measures and frames the space.

Light enters through a system of unfinished wood louvers that provides shade and privacy when desired. The louvers wrap much of the new exterior like a trellis, a deliberate nod to the woodiness of the old house.

The owner laid down one rule: nothing was to be covered up. The house would wear no fancy architectural clothes, no plaster or drywall to hide the construction—not even paint or varnish on wood walls, floors, and ceilings. Most of the floor of the living space, for example, is surfaced in beautiful end-grain repurposed oak that's left unfinished. The expectation is that occupants will wear visible pathways on it. A love of surprising overhangs and transparencies may remind some visitors of the 1931 Maison de Verre by Pierre Chareau in Paris. (Slarsky confesses the influence.)

The no-coverup rule derives from the early Modern movement of the 1920s, when that kind of stubborn honesty was a critique of what was seen as the stagey, pictorial architecture of the Victorian era. The South End interior is modern in that sense, but it is also a revival. Rizkalla collects mid-century modern chairs, and when you join the owners at the round dining table, the social nucleus of the house, you sit on classic chairs by the Danish master Hans Wegner. At 10 Taylor, the game of design is played among several pasts and presents. ■

credits

ARCHITECT: SAS design Build – Scott Slarsky, Christopher Wortley, lead designers; Maryann Upton, conceptual planning

ARCHITECT OF RECORD: Alan Christ

ENGINEERS: Structures Workshop

GENERAL CONTRACTOR: The Holland Companies

SIZE: 4,200 square feet (gross)

COST: withheld

COMPLETION DATE: April 2015

SOURCES

CURTAIN WALL: Kawneer

WINDOWS: Pella

SKYLIGHTS: Dayliter Skylights

LOCKSETS: Frank Allart

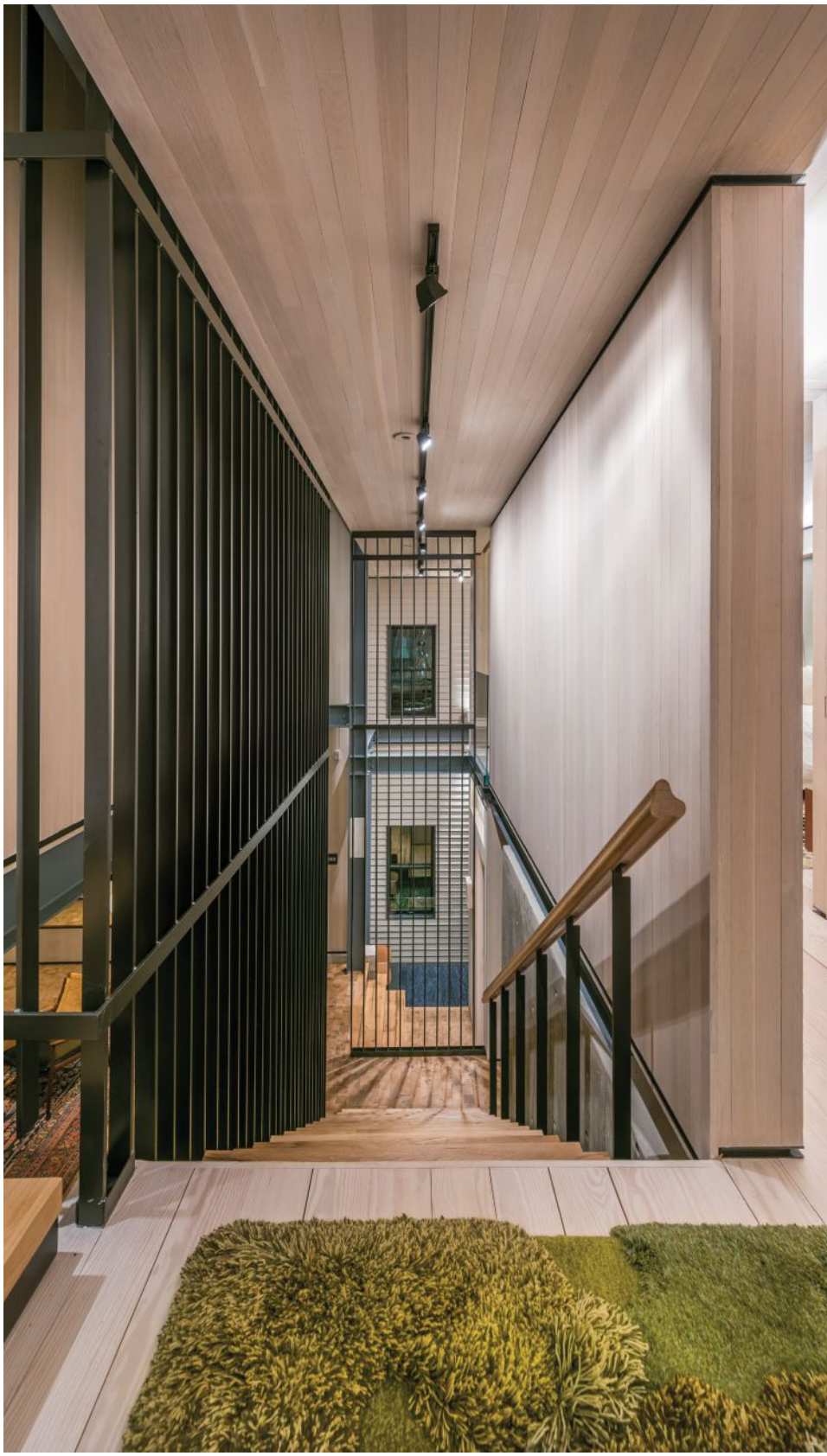
MILLWORK: Jeong Lee Custom Cabinetry

PAINTS AND STAINS: WOCA

WOOD FLOOR: Elmwood Reclaimed Timber

LIGHTING: Flos, Lightolier, Lucifer

BIFOLD GARAGE DOOR: Schweiss Doors



SECOND-STORY JOB Social spaces (opposite) are informal and flow from one to another. The owners' period furnishings help set an intimate tone. The stair landing (above), with its grass-like rug from Argentina, exhibits the owners' and architects' passion for expressive spaces and details.



McCann Residence | Tuxedo Park, New York | Weiss/Manfredi

ROCK STAR

By manipulating materials and the land, designers merge a rustic house and its distinctive site.

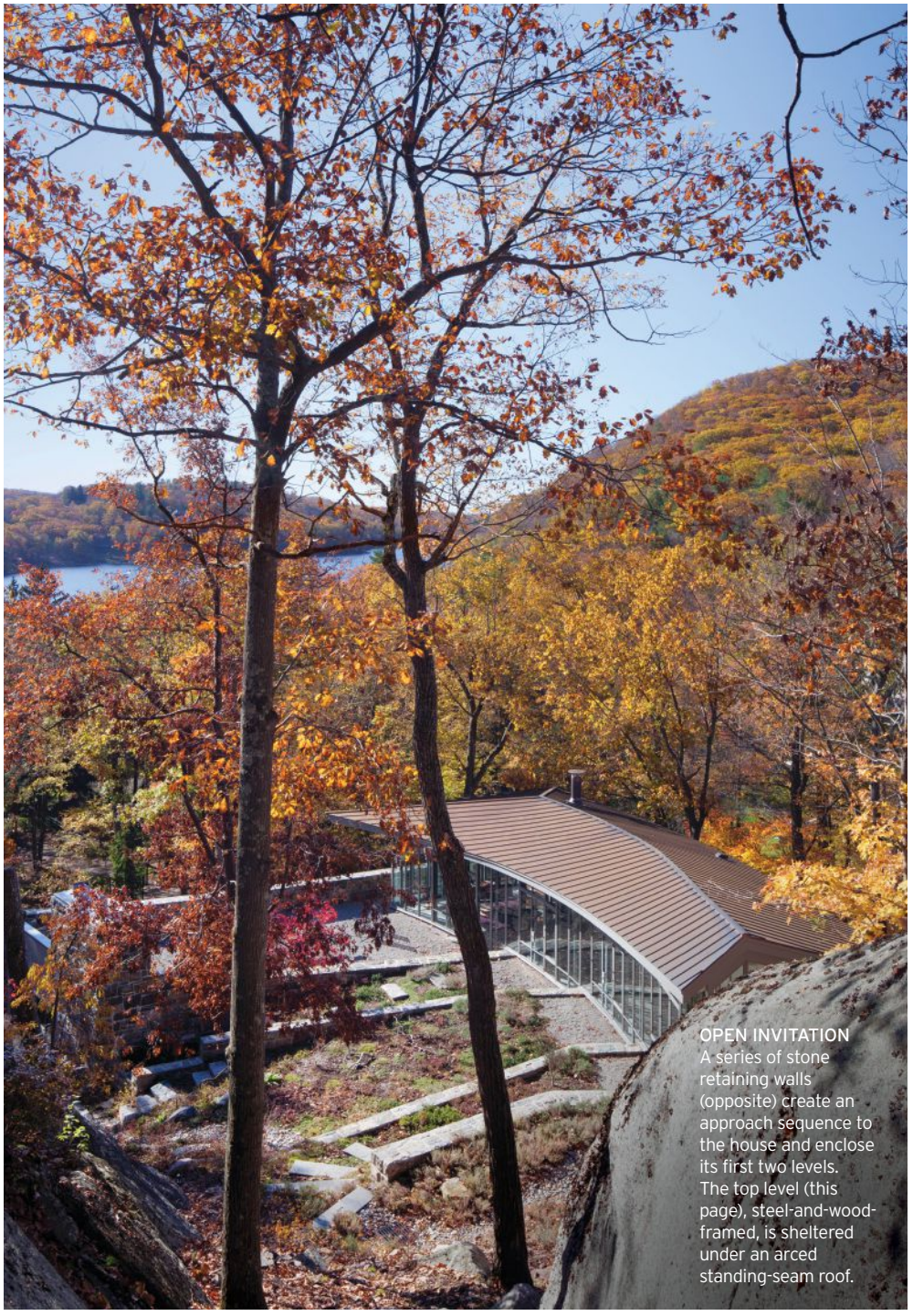
BY JOANN GONCHAR, AIA

Architects Michael Manfredi and Marion Weiss, partners at New York firm Weiss/Manfredi, have long been merging landscape and structure in their work, including the Olympic Sculpture Park in Seattle (2007) and the visitor center at the Brooklyn Botanic Garden (2012). In these projects, the architecture becomes part of the site and the site part of the architecture, so that it is hard to tell where one ends and the other begins.

Now they have explored this theme in their first ground-up residential project, a rustic but modern house in Tuxedo Park, New York, about 40 miles northwest of Manhattan. Established in the 1880s as a private hunting and fishing reserve, the village was a popular retreat for New York's elite through the 1920s, with many stately houses designed by prominent late-19th- and early-20th-century architects, including Bruce Price, McKim, Mead & White, and John Russell Pope. Tuxedo Park (which gave the name to the gentleman's formal attire) is also noted for its distinctive craggy landscape, with dense woods and winding roads.

For more than three decades, Joseph McCann, a PepsiCo executive, and his wife, Anne, a graphic artist and passionate gardener, spent their weekends in a Tuxedo Park carriage house, which Manfredi and Weiss renovated for them in the late 1980s. But the McCanns, now retired, wanted a house comfortable for more extended periods, with room for guests, and conveniences such as air-conditioning. So they bought the adjacent three-acre lot and again turned to Manfredi and Weiss.

The new site is steeply sloped, with two enormous rock outcroppings, and—when the trees drop their leaves—stunning views of Tuxedo Lake. There was already a house there—a dilapidated 1960s structure, which the architects describe as a "faux ski lodge" that seemed "dropped onto the site rather than of it." Not surprisingly, the clients had something entirely different in mind that would be contemporary and "right next to nature," explains Joe.



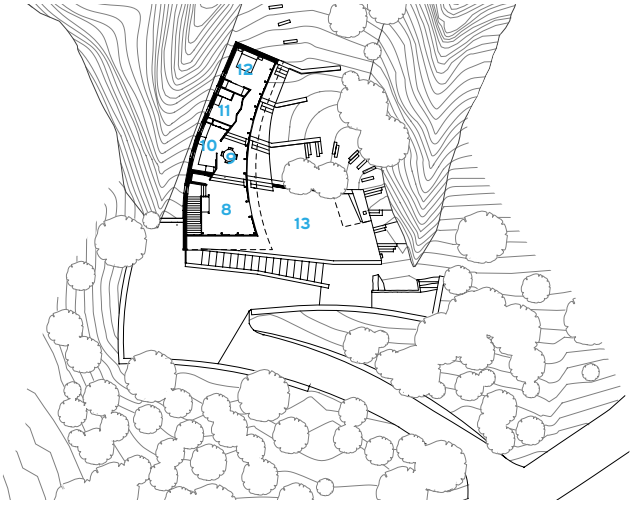
OPEN INVITATION
A series of stone retaining walls (opposite) create an approach sequence to the house and enclose its first two levels. The top level (this page), steel-and-wood-framed, is sheltered under an arced standing-seam roof.

PHOTOGRAPHY: © ALBERT VECERKA/ESTO, EXCEPT AS NOTED

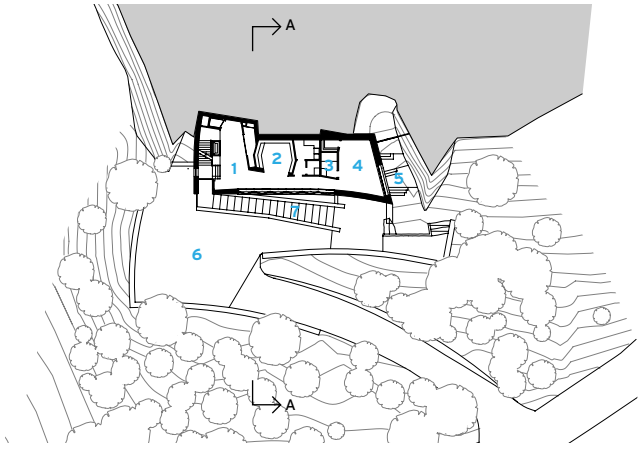


SECTION A - A

1 ENTRY GALLERY
2 LIBRARY
3 GUEST BATH
4 GUEST BEDROOM
5 TERRACED PATH
6 DRIVEWAY
7 ENTRY STAIR
8 LIVING
9 DINING
10 KITCHEN
11 MASTER BATH
12 MASTER BEDROOM
13 TERRACED GARDEN



TERRACE-LEVEL PLAN



ENTRY-LEVEL PLAN



IN THE DETAILS The house includes many tactile elements such as perforated bronze screens at the front door (above) and at a long window in the front, south facade (opposite). The fieldstone, laid in an ashlar pattern, is from a quarry that is a few miles from the site.

The architects proposed replacing the existing house with a series of retaining walls made of local fieldstone. These ashlar walls would appear to march up the terrain, outlining a serpentine approach. They would also define the house's lower two levels, which were to be built entirely within the footprint of the existing foundations, enclosing a guest bedroom and library, among other spaces. A steel-and-wood-framed third level, mostly invisible from the road except for a clerestory and a portion of overhanging roof, would sit behind the house's primary stone facade. This top floor—to contain the living room, dining area, kitchen, and the master bedroom—was to curve in sync with the contours of the giant boulders. It would include a long window wall facing east, overlooking a terraced garden.

Before construction could begin, the scheme needed the go-ahead from the local architectural review board. The process took more than a year, but Manfredi and Weiss finally convinced the board that, though their design did not hew to the favored Tudor, Georgian, or Shingle styles, it was in keeping with Tuxedo Park's





PLEATS PLEASE
Third-floor spaces like the kitchen (right), bath, and bedroom are hidden behind a pleated drywall partition. But the dining and living spaces (above) flow into each other, separated by a few risers in the polished concrete floor. The changes in elevation match those of the terraced garden (opposite), which is seen and accessed through a curved window wall.



PHOTOGRAPHY: © JEFF GOLDBERG/ESTO (2)



character. As with the turn-of-the-century villas and cottages, their design took its cues from the surrounding landscape, its stone walls similar to those found along the village's roads and on many of its historic houses. In addition to "metering the topography," said the architects, the walls would help control water runoff from the steep slopes of the site.

In the finished house, this relationship with the terrain is most apparent on the top level, reached via a stair with a glass balustrade or by elevator. It reads as one long, curvilinear open space, sheltered under a seemingly floating king-post-truss-supported roof. The more private areas—the kitchen, bath, and master bedroom—are lined up, hidden behind an origami-like drywall partition that stops a few inches short of the bottom chord of the roof truss.

But the living and dining spaces flow into each other, with their polished concrete floors stepping up a few risers between them. This change in elevation matches that of the adjacent terraced garden, seen and easily accessed through sets of double glass doors integrated into the arced steel-framed eastern window wall. The more solid, west-facing exterior wall has a clerestory, which helps reinforce the impression that the roof is floating, and also contains small windows that offer framed vistas over the McCanns' carriage-house property. These strategies, which put the focus on the outside, are so effective that when you are on the top floor, the rest of the almost 5,000-square-foot house all but disappears, making this level seem like a small pavilion in the landscape.

The McCanns are helping to fuse the site and structure by building a narrow pathway into the slope behind the house that echoes the terraces of the garden below. They have also planted nearly 50 trees, including oaks and Eastern white pines, and are experimenting with shrubs and ground covers such as heather, thyme, and witch hazel. They want, says Joe, "something that looks natural but is also artful." Those words could describe the house as well, which skillfully merges with the landscape to create what the architects like to call a "habitable topography." ■

credits

ARCHITECT: Weiss/Manfredi Architecture/Landscape/Urbanism – Marion Weiss, Michael A. Manfredi, design partners; Michael Blasberg, Lee Lim, Hamilton Hadden, project architects

CONSULTING ARCHITECT: Michael DeCandia Architects

CONSULTANTS: Thomas W. Skrable (civil); Weidlinger Associates (structural: roof); Cowley Engineering (structural); Brandston Partnership (lighting)

GENERAL CONTRACTOR: Longeri Construction

CLIENTS: Joseph and Anne McCann

SIZE: 4,800 square feet

COST: withheld

COMPLETION DATE: 2014

SOURCES

STONEWORK: Legacy Stoneworks

WINDOWS: Hope's Windows

BRONZE SCREENS: Veyko

INTERIOR LIGHTING: Lightolier, Bega, Lightology, RAB Lighting

EXTERIOR LIGHTING: Philips



PURE AND SIMPLE
The Eastern white cedar–shingled house sits among spruce, pine, and oak trees on the shores of Grand Lake in Nova Scotia's Annapolis County. Its simple form is a nod to the "Newfie Box" of the area.



Mirror Point Cottage | Annapolis Royal, Nova Scotia
MacKay-Lyons Sweetapple Architects

ON THE WATERFRONT

A seasonal house in Canada's Maritimes takes inspiration from local fishermen's cabins.

BY JOSEPHINE MINUTILLO

PHOTOGRAPHY BY JAMES BRITTAIN

The biggest decision about the design of the house on Grand Lake in Nova Scotia, along Canada's Atlantic coast, says architect Brian MacKay-Lyons, was to elevate it. That singular move solved a number of issues related to site and function, and turned a modest house modeled after the traditional cabins that dot this picturesque landscape into a subtle architectural achievement.

The lofty abode, arrived at after driving more than a mile over a narrow, twisting pathway off a main road, takes on a monumental presence as it finally reveals itself among a forest of evergreens. Anticipation similarly builds on the way into the house. Passing beneath the raised portion of the building to low, framed views of the lake, one immediately turns to ascend a slender, enclosed wood-clad staircase before reaching the open glass-walled main living space and its unobstructed panorama. Says MacKay-Lyons, "There's a choreography about the entry that is important."

Built as a vacation house for a local fisherman's daughter who resides primarily in London with her Dutch husband and two young children, the design combines vernacular influences with an equally strong contemporary aesthetic, and accommodates the needs of the three generations of this family who spend summers and winter holidays here.

The form of the building is immediately recognizable in these parts as a "Newfie box," a popular typology thought to have been brought over by fishermen and shipbuilders from nearby Newfoundland. The simple structure comprises a low-pitched gable carved into a 16-by-16-foot square.

This particular version features a slightly deeper angle to the roof, and is extruded 80 feet along the east–west axis to maximize solar gain. An operable clerestory runs along the entire length of the northern facade, providing natural ventilation in tandem with the sliding glass doors of the south facade, while also offering two kinds of light—north and south—throughout the long, linear space. (Low glass partitions on the south facade, practically invisible, serve as balustrades when the doors are open.) Its clever layout tucks in a kitchen, fireplace, staircase, and closets—all clad in Western red cedar—along the solid, heavily insulated northern wall, with living and dining spaces, two bedrooms, and a bath facing the lake. "The house is essentially a giant porch," its architect explains.

The small board-formed-concrete bunker beneath the main level contains a guest bedroom and an additional bathroom, as well as a very



minimal mechanical closet. (Hydronic heating within the high-thermal-mass concrete floors is powered electrically.) Beside the bunker—which, together with the steel bracing above it, makes up the house's structural core—is the summer kitchen. That sunken area is defined by the four steel posts that help support the suspended living area and was designed, in part, with the grandparents in mind. "They visit often," says MacKay-Lyons. "They can cook and eat and relax here in the shade without climbing up and down the stairs, while keeping an eye on the kids when they're swimming in the lake."

The timber for the deck and walkways around the pit is a local hemlock, the "poor man's cedar," according to MacKay-Lyons, who designs with economy as an ethic, irrespective of a client's pocketbook. He and his Halifax-based firm, MacKay-Lyons Sweetapple Architects, have completed over 80 residential projects in the area, including the dramatic Cliff House (RECORD, October 2013, page 33), defining a Nova Scotia modernism in the process.

Inside this house, the most striking feature is the series of gang-nail trusses that supports the roof. A commonplace structural system that is typically hidden, MacKay-Lyons here exposes the 17 pairs of trusses—spaced 5 feet apart and fitted together with plates of galvanized sheet metal—to great effect. "To create certain kinds of luxury, other things need to be cheap," he explains. "The trusses were cheap, the vast expanse of glass was a luxury."

MacKay-Lyons not only looks to vernacular architecture but to the



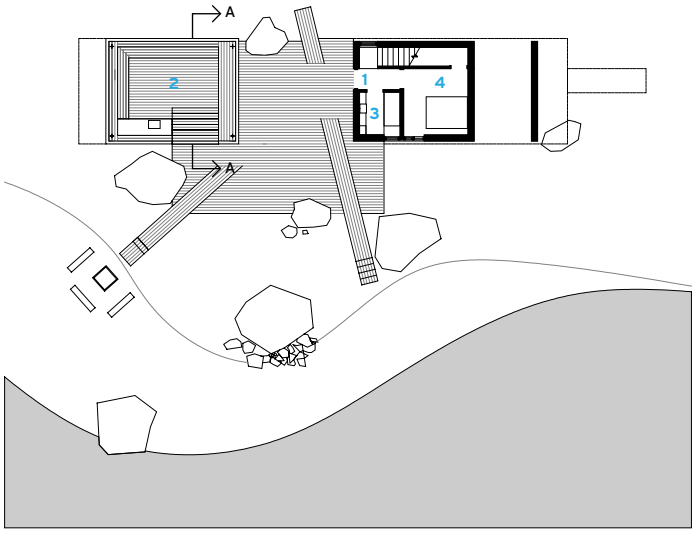






LONGHOUSE
The 80-foot-long house is essentially an extrusion of its gabled front, with the main entrance below the elevated structure (opposite). A sunken area serves as a summer kitchen (top) and offers framed views of the lake (far right). An operable clerestory along the entire northern facade provides natural ventilation (right).



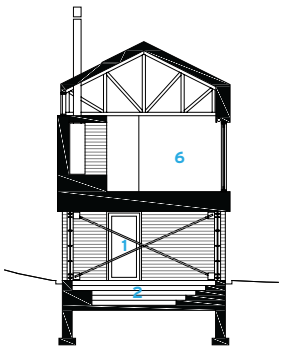


GROUND-FLOOR PLAN

0 20 FT.
6 M.



SECOND-FLOOR PLAN

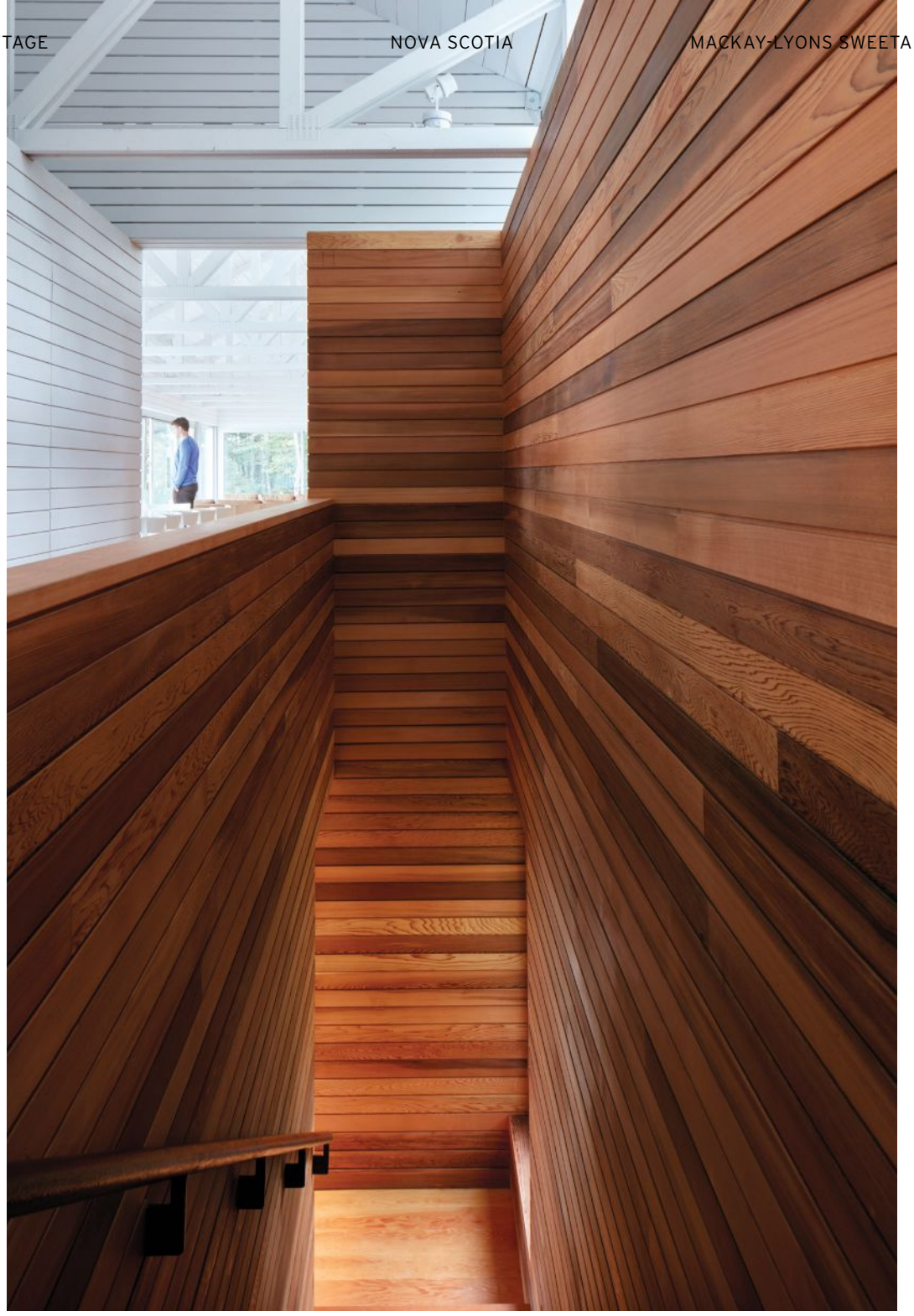


SECTION A - A

0 6 FT.
2 M.

1 ENTRANCE
2 SUMMER KITCHEN
3 BATHROOM
4 BEDROOM
5 KITCHEN/DINING
6 LIVING





WOODLANDS
The gang-nail roof truss, normally hidden, is exposed and painted white, along with the pine planks of the main walls and sloping ceiling (opposite). The cabinetry of the kitchen and fireplace in the main living space is clad in the same Western red cedar that sheathes the staircase (left).

traditions of the region—in this case, those of the shipbuilding history of the Maritimes. He lined the underside of the building in cedar that is reminiscent of the hull of a ship. Distinct elements, including the gate to the property and a walkway off the main bedroom—the eastern end of the building almost touching grade—are made from rusted steel, like that found in old shipyards.

On the inside, the pine planks of the walls and sloping ceilings, and the solid wood two-by-fours of the trusses are painted white. Sparse furnishings and decor adhere to the minimal aesthetic, allowing the bucolic backdrop to take center stage. Says the architect, "We wanted to provide the widest range of experience in the simplest package." ■

credits

ARCHITECT: MacKay-Lyons Sweetapple Architects

ENGINEERS: Campbell Comeau Engineering (structural)

GENERAL CONTRACTOR: Scott Shearer Contracting

SIZE: 2,450 square feet

COST: withheld

COMPLETION DATE: November 2014

SOURCES

METAL ROOFING: Firestone

ENTRANCES AND METAL WINDOW FRAMES: Comdoor

GLASS: PPG

SLIDING DOORS: Arcadia

INTERIOR AMBIENT LIGHTING: Sistemalux

TASK LIGHTING: Artemide

DIMMING AND CONTROLS: Lutron



Seville House | Seville, Spain | Harald Schönegger and Inmaculada González

INNER SANCTUM

Entering a door on a narrow street reveals a transparent, verdant world within.

BY DAVID COHN

PHOTOGRAPHY BY FERNANDO ALDA CALVO

The lively streets and cafés that make a city like Seville, Spain, so attractive to visitors have a hidden counterpart in the tiny, dark, and decaying apartments that form much of the housing stock in older districts. Overbuilding has crowded out what appears to have been a more relaxed, amiable city, still visible in a few privileged corners, where houses open around plant-filled patios and lush gardens. Architects Harald Schönegger and Inmaculada González sought to recover this ideal Seville, with its combination of urbanity and livability, when they built a home for themselves and their two college-age children on a







narrow street in the heart of the historic center. While Schönegger, a native of northern Italy's German-speaking provinces, and González, who is Spanish, maintain separate professional careers, their design reflects their modernist vision of urban living. Schönegger confesses that Mies van der Rohe, particularly his Court House projects of the 1930s, was indeed an important point of reference, with glazed volumes of soaring open spaces set between walled courts filled with trees and plants.

The raw shell for their project is typical of the city's older dwellings. The modest three-story house dates to the late 18th century, but was subsequently converted into apartments, its open spaces obstructed by a hodgepodge of careless additions. Nevertheless, the parcel had "generous proportions," according to Schönegger, including 12-foot-high ceilings on the first two floors. The architects restored the original facade, with its characteristic unglazed windows—small hinged doors open in the heavy wood shutters to let in light and air. They kept the first structural bay, as mandated by local preservation laws, but pulled down the rest and started over.

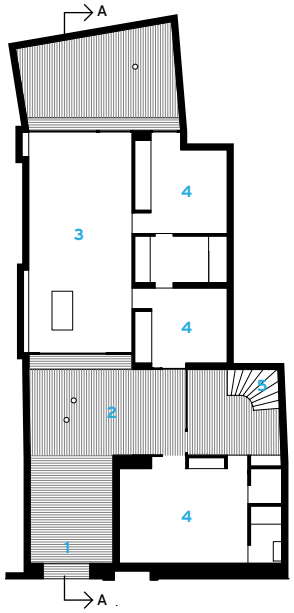
According to Schönegger, their goal was "create an interior landscape, pleasant and green." Gingko trees in the two cobblestone-paved courtyards, climbing ivy, and a plant-covered terrace and rooftop garden soften the new structure inserted between the open spaces. The architects

GARDEN VIEW
The architects found a house on a narrow pedestrian street in the historic center of Seville (opposite). They restored its original 18th-century facade (opposite, left), which adds a sense of mystery to the entrance. Inside, the unsuspecting visitor finds a glazed garden (left). A rear court opening off a guest suite retains both a feeling of privacy and transparency.



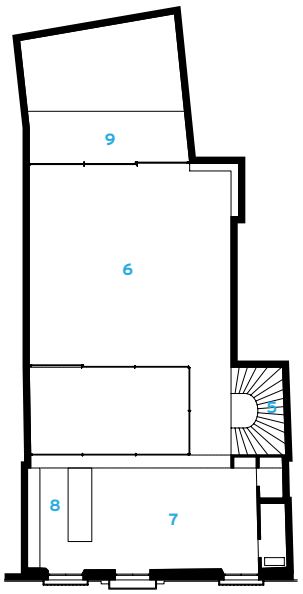






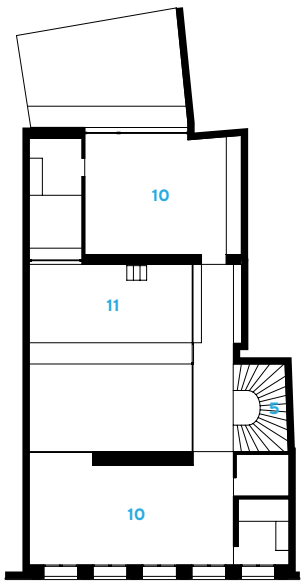
GROUND FLOOR

0 10 FT.
3 M.

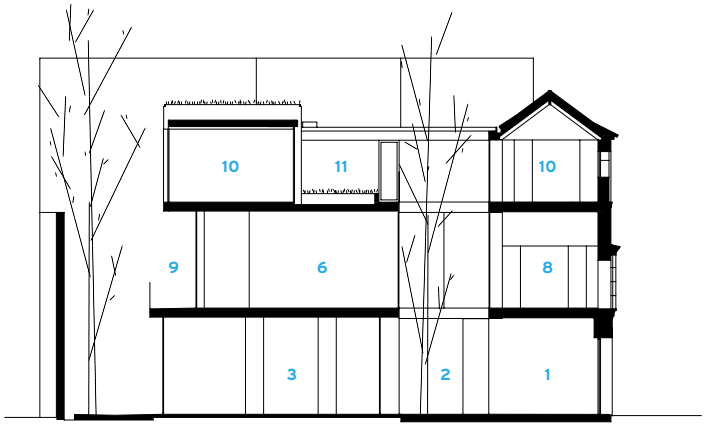


SECOND FLOOR





THIRD FLOOR



SECTION A - A

1 ENTRANCE
2 MAIN COURT
3 GUEST LIVING ROOM
4 GUEST BEDROOM
5 STAIR
6 LIVING ROOM
7 DINING ROOM
8 KITCHEN
9 TERRACE
10 FAMILY BEDROOM
11 GREEN ROOF

SEE-THROUGH
A second floor for living and dining is pierced by the glass atrium (opposite, top left). Beyond the living area is a terrace visible through glazed walls (above) where the architects removed the back wall of the surviving structural bay and supported restored wood ceiling joists on a transverse beam. The steel-plate spiral stair twists up from the main entrance court (opposite, bottom). Its sculptural shape gives a sense of drama to the bridge connecting the living and dining spaces.



also brought controlled natural light into the house with walls of floor-to-ceiling glass, including operable sections to assure cross-ventilation. In the entry court, the architects removed the back wall of the original structure to enclose it almost entirely in glass, using transverse beams to support the restored wood joists of the floors and roof. As a result, views from the second-floor kitchen and dining area at the front of the building extend across the entire parcel, through the entry court and the generous living area, beyond to the trees and ivy-covered walls at the back. The couple describe the composition as "two crisp volumes containing only air and light."

Important details add to the design's atmosphere of ethereal spaciousness, particularly the tall spiral staircase of black steel plate, crafted by Jorge Vázquez Consuegra. Rather than branching off a central pole, the stair winds exquisitely around a void, supported by the twisting steel flange of the banister. The minimalist stainless-steel cube of the island kitchen in the ground-floor guest suite offers another elegantly sculptural element, as does the longer rectangular one on the main level above.

Other subtle refinements include recessed windows for solar protection and discreet sliding shutters in the bedrooms. The raised, planted terrace on the roof of the living room overlooking the entry court strikes a particularly felicitous note: set in front of the master bedroom, its thick green foliage open to the sky can be seen from the large window in the bath's walk-in shower.

Despite its interior warmth and charm, the house is a forbidding presence on the street, a passageway too narrow for cars near the Feria Market. The architects painted the entire facade in matte white, including balcony railings and the elaborate window shutters. Schönegger explains that their intention was to emphasize its proportions, but the result, with its blind windows, is rather austere, as if they were trying to make the building invisible, and suggests a lack of comfort or security in a neighborhood currently undergoing gentrification. However, when the wide front door opens to reveal the courtyards beyond, with their greenery and dappled light, the contrast is dramatic.

Like Mies's Court House projects, Schönegger and González's residence provides an engaging meditation on the attractions and anxieties of city living. And it offers a more sensitive alternative to the old modernist obsession with curing the ills of the overcrowded city through wholesale demolition. ■



credits

ARCHITECT: Harald Schönegger and Inmaculada González

ENGINEERS: Tedesco (structural, m/e/p)

GENERAL CONTRACTOR: Eric Desmons Construcciones

CLIENT: Harald Schönegger and Inmaculada González

SIZE: 4,200 square feet

COST: $520,000

COMPLETION DATE: January 2015

SOURCES

METAL PANELS AND METAL-AND-GLASS CURTAIN WALL: Talleres Vazquez

GLASS: Astiglass

WALL COVERINGS: Saint-Gobain (Placo)

PANELING AND CABINET WOODWORK: Vercar

SPACE AND LIGHT
Existing ceilings, 12 feet in height, and glass walls give a sense of expansiveness to the kitchen/dining area (opposite) punctuated by Arne Jacobsen chairs and an Achille Castiglioni lamp. The rooftop garden (above) overlooks the entry court and offers views of a third-floor bedroom and the kitchen/dining area below.

Helix House | Tokyo | Makoto Takei + Chie Nabeshima / TNA

THE DOMINO EFFECT



A 21st-century twist on an early Corbusian concept creates a roomy, comfortable spatial arrangement for a young family—indoors and out.

BY NAOMI R. POLLOCK, AIA

PHOTOGRAPHY BY DAICI ANO

Located in an exclusive Tokyo neighborhood defined by gracious, tree-lined avenues, the modest wood-shuttered house designed by the Tokyo firm TNA is a Maison Dom-ino structure with a twist. Like Le Corbusier's conceptual model, it consists of simple slabs and columns. While the piloti elevate the building above the ground, a spiraling ramp wraps its perimeter, seamlessly stitching all of its levels together in one tidy package—without any stairs.

Named Helix House by the architects, the project began with a cold call from the clients, a couple with three school-age children. Impressed with an earlier TNA home, Ring House (RECORD, April 2007, page 106), they contacted the husband-and-wife firm, hoping to build something on their newly purchased 1,875-square-foot plot. Many of the area's old houses no longer exist, but unusually strict building codes help maintain a distinctive character for the community.

Although those requirements would not affect the architectural style, they did call for setbacks and certain limits on dimensions. And, unlike what's allowed in other parts of the city, the architects could not build underground; neither could they create more than two stories of habitable space. Additionally, on the north face, they could only install small windows for ventilation, lest they compromise their neighbor's privacy (large windows on the south side are common in Japan). "The restrictions were the most harsh we've ever encountered," says TNA principal Makoto Takei. But all those rules turned out to be catalysts for invention.

Instead of following the local convention of placing a shuttered garage and walled garden on the street, the architects raised the house and put the yard beneath it. This not only opened up the urban fabric, it distanced the residence from street activity, which preserves privacy while creating a protected parking and play area under the house. Covered with sand, this outdoor space is where the ramp begins its ascent to the entrance.

As it rises, the gradient encircles much of the site before reaching the modest main entrance, tucked directly behind the raised facade. The ramp crosses the threshold and continues inside the house, sandwiched between the facade and a thick storage wall. From there it leads to a 1,355-square-foot interior space: a wood-paneled kitchen, dining, and living area, followed by the private quarters on the second floor comprising three cubicles for the children, a bathroom, and the master bedroom. In contrast to their





RAMPING UP The house is elevated on piloti and clad entirely with louvers for privacy (opposite). Covered with sand (right), the outdoor space is ringed by a ramp leading toward the main entrance (top).



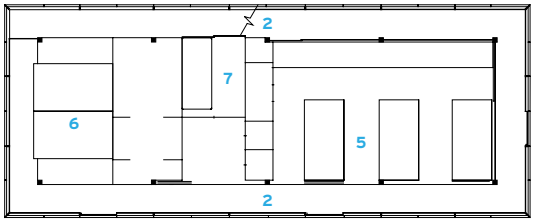
CIRCLE GAME Surrounded by the ramp, the combined kitchen/dining/living area is where the family congregates (right). TNA created the main furnishings, which include a leather sofa designed to sit comfortably against the ramp and a 9-foot-long dining table that converts easily for family Ping-Pong matches. Similar to a traditional Japanese *engawa* porch, the ramp doubles as extra seating or lounging space.

parents' room, with its expansive view, the siblings occupy compact sleeping berths, each containing a captain's bed and cubbies. These open directly to a shared study area, where a built-in communal desk parallels the ramp beyond.

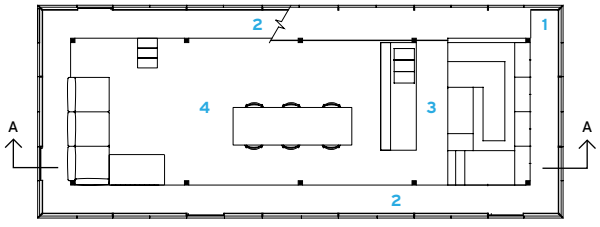
Measuring 2½ feet wide by 345 feet long, the ramp ranges in slope from 1:10 at its steepest to 1:18 at its gentlest. (For every 10 or 18 units of horizontal distance there is one unit of vertical rise.) Except for modular steps added to create a shortcut, the ramp is the sole circulation path, yet it is not simply a conduit connecting levels: it is as much a part of the furniture as it is of the architecture, providing a place to sit, lie, or play.

The Helix House ramp blurs the divide between inside and out as it winds its way into the house and then out again before reaching the roof. Clad in wood, it matches both the interior and exterior surfaces. "Because the clients' previous house had white walls, we wanted something different," explains Takei. Their choice was to use teak not just for the ramp but also the ceilings, floors, cabinetry, dining table, and other custom furnishings. The only white surfaces are in the bathroom.

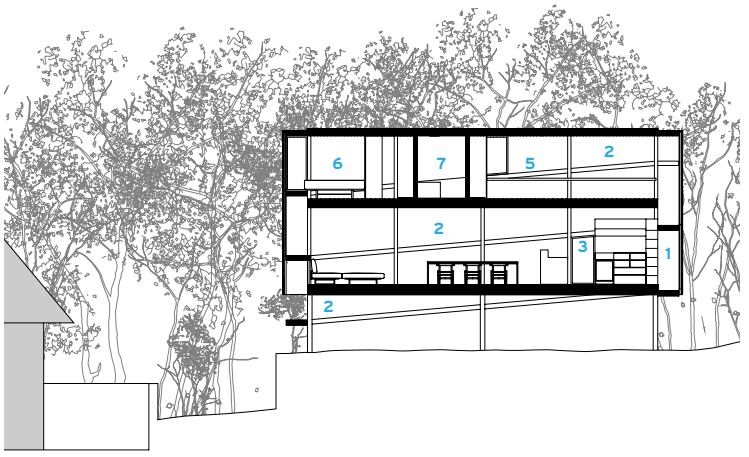
TNA selected Nyatoh wood for the exterior louvered wall panels that give the building its sleek appearance. Concealing an inner layer of insulated double glazing that shuts out the elements, most of the panels are fixed. Of the 12 that are movable, six cover operable windows of various sizes. The louvers' elegantly tapered fins are angled at 25 degrees, maximizing views out but minimizing views in. A steel framing system, invisibly integrated with the window sashes, supports the weight of the outer walls. Cantilevered steel beams concealed within the ramp transfer this load to the main structure: 10 steel columns on the two upper levels supported by six piloti at grade.



SECOND FLOOR



FIRST FLOOR



SECTION A - A

0 6 FT. 2 M.

1 ENTRANCE
2 RAMP
3 KITCHEN
4 LIVING/DINING AREA
5 CHILDREN'S AREA
6 MASTER BEDROOM
7 BATHROOM

0 6 FT. 2 M.



credits

ARCHITECT: Makoto Takei + Chie Nabeshima / TNA – Makoto Takei, Chie Nabeshima, principals

ENGINEERS: Yakutaka Konishi / Konishi (structural)

GENERAL CONTRACTOR: TH Morioka

CLIENT: withheld

SIZE: 1,355 square feet

COST: withheld

COMPLETION DATE: September 2015

SOURCES

CHAIRS: Carl Hansen

LIGHTING: Lumina (task and floor)







SHIPSHAPE Upstairs, a communal desk for the children parallels the ramp (left). Like a compact cabin on a boat, each sleeping berth consists of a built-in bed and storage (above). The teak ceiling in the master bedroom conceals a TV supported by a steel frame (below).



"When we went to school, no one designed with piloti," says Takei. According to the architect, despite Japan's love of post-and-beam construction, these components were thought to be expensive and inefficient. Yet that didn't derail TNA: "We always pay close attention to how our buildings meet the ground," Takei says. And old ideas have ways of resurfacing. By adapting Le Corbusier's columns/piloti/architectural promenade in the ramp, TNA created a cozy interior where the family enjoys gathering, plus a protected exterior where they can appreciate nature even in the heart of the city. Buried in this historic concept was TNA's chance to unearth a new solution for Helix House. ■

THE ENVELOPE THAT PUSHES BACK

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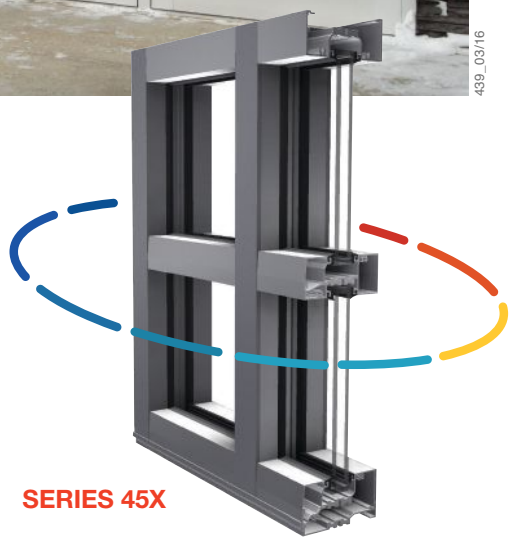


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Catching Rays

A diverse set of projects demonstrates that a building's skin can be transformed into a solar power plant.

By Michael Cockram

FOR SEVERAL decades, building integrated photovoltaics (BIPVs) have been waiting in the wings for much-anticipated fame and success. But the technology, which transforms a building's envelope into a solar power plant, has remained a niche market since its development in the late 1970s.

Conventional photovoltaic (PV) panels, which are typically installed on a building after construction, have long been the industry favorite. In the last 20 years, average costs of PV systems have been cut in half, while global solar production has soared tenfold. But of the roughly 200 gigawatts (GW) of photovoltaic capacity worldwide, BIPV supplies only about 5 GW. This situation could soon change, however. The demand for BIPVs, which replace standard exterior finishes with materials that incorporate photovoltaics, seems poised to take off. Studies such as a 2015 report by Technavio, a U.K.-based market research company, predict that global BIPV sales will triple by 2019, and triple again to $26 billon by 2022. Chief among the factors fueling this growth is a trend toward "truly monolithically integrated PV materials," including BIPV shingles and tiles that can be substituted for conventional roofing products and have built-in electrical connections.

One reason for the market's past slow growth is the limited size choice in solar cells, explains Gregory Kiss, principal at Kiss+Cathcart architects. Because building-product manufacturers in the BIPV market typically rely on premanufactured solar cells, they have difficulty integrating the cells into conventional construction materials, he says. For architects like Kiss, who coauthored a pioneering study on BIPV for the National Renewable Energy Laboratory in 2000, it has often been more practical to use less expensive conventional PVs on projects such as his firm's Bushwick Inlet Park in Brooklyn (ARCHITECTURAL RECORD, June 2014, page 236). But he points out that the price of BIPVs is falling. Aditionally, they have the potential to offset some of the cost that would go into other materials and installation. In addition, there are a growing number of companies that can deliver BIPV modules of any size, shape, or color, he says.

ENERGY AND SHELTER

A project that demonstrates a higher profile for BIPV is the 64-story mixed-use Tanjong Pagar Centre, which will be the tallest building in Singapore when completed later this year. At the base of the mixed-use structure's two conjoined steel-and-glass towers, the architects at Skidmore, Owings & Merrill (SOM) designed a 26,000-square-foot City Room Pavilion with thin film solar modules embedded in the glass canopy. The challenge of the 80-foot-tall steel-frame structure was to provide the retail and public areas with protection from the intense tropical sun and heavy rain while generating power, according to SOM's design development lead architect, Nicolas Medrano.



COMPLEX CANOPY The roof of the enntry pavilion at SOM's Tanjong Pagar Centre (opposite and above) in Singapore is covered with thin-film PVs laminated between two layers of glass. Each of the almost 850 panels required its own junction box.

Typically, thin film solar modules are made by depositing an extremely thin pattern of photovoltaic silica or metal-based material onto a substrate such as glass or plastic. Their efficiency (the percentage of solar radiation converted into electricity) runs between 8 percent and 14 percent, depending on the composition, while crystalline cells, which are made of silicon crystals and require a heavier glass substrate, are about 20 to 25 percent efficient. Although they are less efficient, thin film modules have the advantage of being very light and flexible, allowing them to be applied to curved or even inflatable structures.

At Tanjong Pagar, SOM specified thin film PVs laminated between two layers of glass to produce a shading effect. The architects found a module that has an energy-absorbing black on the top side but is almost white on the bottom, which makes the underside appear more uniform. The result is a module that garners solar power, absorbs heat, and provides partial shade. "The canopy allows a lot of light in but lets almost no heat through," Medrano says. He adds that plentiful daylight was important to maintain the health of the vegetation planted below the canopy.

Each of the canopy's 848 49-by-100-inch modules requires its own junction box, integrated by the architects into the structure's mullions. But the complexity of the system could make it hard to take advantage of better-performing modules as they become available. And, in fact, in the two years between the construction documents phase and installation, larger and more efficient modules have come on to the market, too late in the process to adapt the canopy. A "plug and play" system that simplifies installation and facilitates upgrades could spur more demand for BIPV systems, points out Medrano.

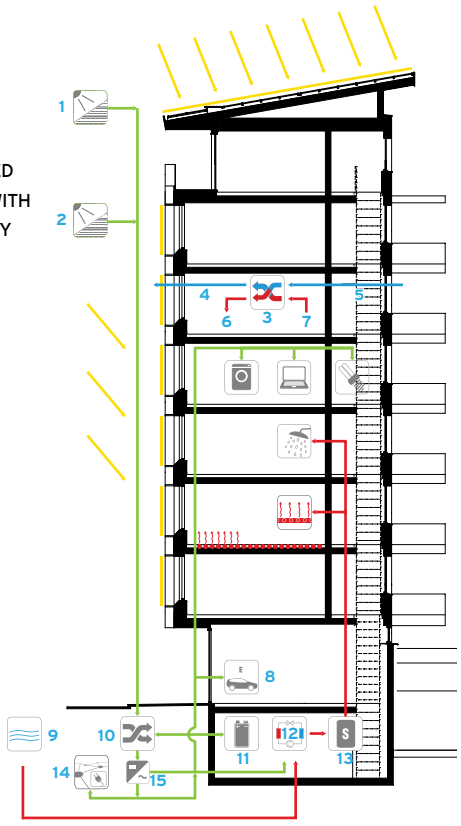
In full sun, the canopy can produce a maximum of 149 kilowatts (KW). When combined with the 175 KW peak output of the conventional multicrystalline panels on the building's roofs, solar satisfies 1 percent of the 1.4 million-square-foot building's power demand. Although this sounds negligible, it should help Tanjong Pagar achieve LEED Platinum for its office portion and LEED Gold for its residential component.

TWO POWERHOUSES

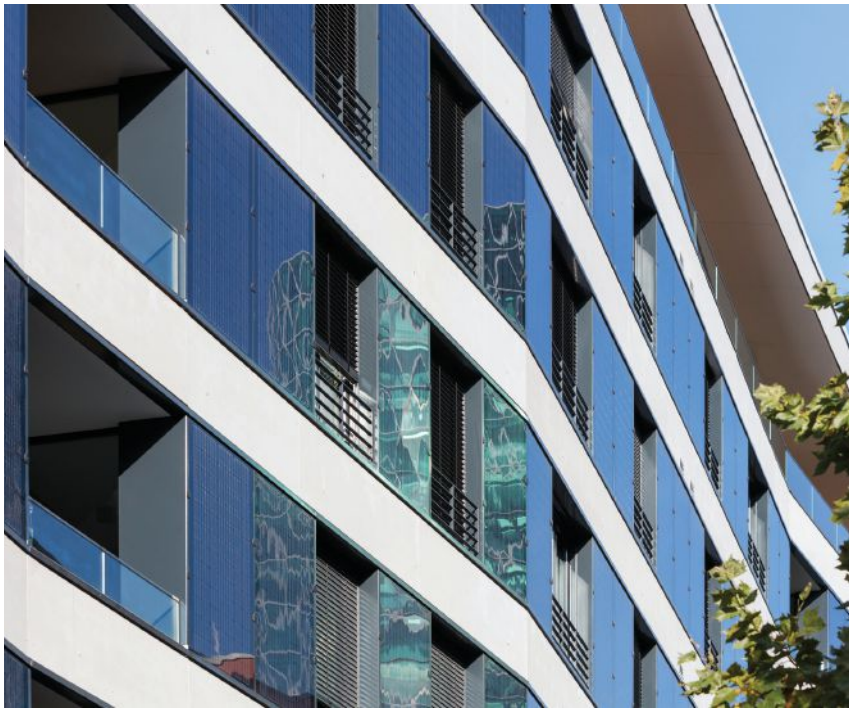
In Germany, which has the ambitious goal of supplying 45 percent of the country's energy through renewable sources by 2030, BIPV is playing an increasing role.

RENDERINGS: COURTESY SOM/© DIGITAL MIRAGE

1 ROOF PV
2 FACADE PV
3 DECENTRALIZED VENTILATION WITH HEAT RECOVERY
4 EXHAUST AIR
5 OUTSIDE AIR
6 SUPPLY AIR
7 RETURN AIR
8 ELECTRIC CAR SHARING
9 SEWER
10 ENERGY MANAGEMENT
11 BATTERY
12 HEAT PUMP
13 WATER TANK
14 GRID
15 INVERTER



ENERGY CONCEPT DIAGRAM



FACIAL TREATMENT In addition to the 770 conventional PV panels on the roof (below), Hegger Hegger Schleiff's apartment building in Frankfurt incorporates 348 BIPV panels into its facade (above). Together, the two systems generate a surplus of energy.



The Aktiv Stadthaus in Frankfurt is a pilot project for Germany's multifamily EfficiencyHousePlus standard, which requires a building to produce more energy than it consumes. Completed last summer, the eight-story structure with 74 living units occupies a 27-foot-wide by 480-foot-long site in the central district of the city.

Although the roof is covered with 770 conventional PV panels that generate up to 247 KW, the architects at Hegger Hegger Schleiff added 348 BIPV wall panels to the south facade to exceed the building's energy needs.

The project demonstrates strategies for two primary challenges for PV-powered buildings. First, what will keep the energy demand low, so that costly systems like BIPV can be minimally sized? Second, is there a way to supply power when the sun isn't shining?

The architects were able to keep power loads in check by outfitting the apartments with extremely efficient appliances and lighting. High-performance triple-glazed windows and insulated wood-frame infill walls also contribute to the building's low energy appetite, as do heat exchangers placed in a nearby sewer tunnel to supply the heat pumps that control the temperature inside the apartments. The project's low energy consumption nearly meets the stringent Passive House standard of 1.7 KW per square foot annually.

Although the building is connected to the grid, the designers placed a 250 KW battery system in the basement to store excess power during daylight hours and supply energy at night when demand is often greater. This

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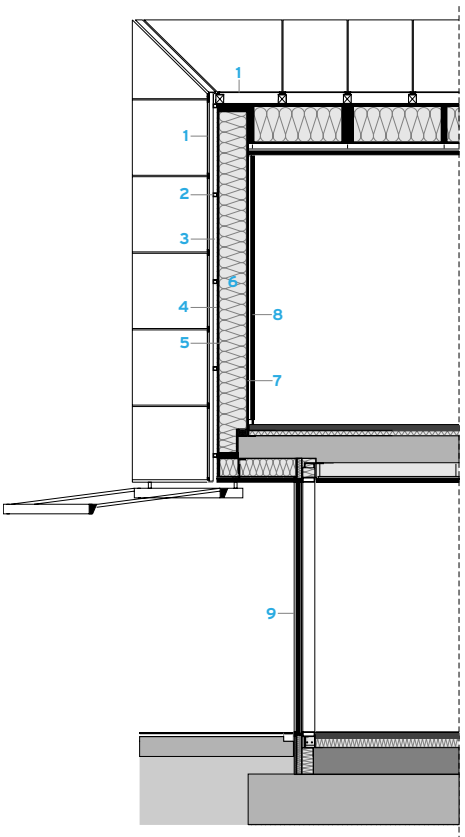
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POWER PLAY The zigzagging facade of Opus Arkitekten's +e Kita, a day-care center in Marburg, Germany, allows adequate surface area for both energy-generating BIPVs and for vision glazing.



SECTION DETAIL - WEST FACADE

0 3 FT. 1 M.

1 MONOCRYSTALLINE PV
2 ALUMINUM-TUBE FRAME
3 VENTILATED AIRSPACE
4 POLYETHYLENE MEMBRANE
5 ORIENTED STRAND BOARD SHEATHING
6 STUDS WITH MINERAL WOOL INSULATION
7 VAPOR BARRIER
8 PINE SLATS
9 VISION GLASS

backup system also helps make the building more resilient in the event of a power outage, points out project architect Kai Erlenkämper.

About 50 miles north of Frankfurt in Marburg, a day-care center was the first building of its type to receive AktivPlus designation (another German standard requiring that on-site energy production exceed demand). Designed by Darmstadt-based Opus Architekten, the 9,900-square-foot facility, known as +e Kita, has a sawtooth roof with BIPV monocrystalline PV panels covering its south-facing slopes. As in the Aktiv Stadthaus, the designers supplemented the roof panels with BIPV wall modules in order to exceed the power demands of the building: the 52 KW system can supply about 41,000 KWh per year, while the demand is 37,000 KWh.

Unlike the thin film modules on the Tanjong Pagar project, the black monocrystalline cells used on the day-care center are more opaque and less practical for filtering daylight. Opus Architecture's solution was to create a west facade with an upper level that takes its cues from the roof's sawtooth. It zigzags in plan, with panels angled so that they are oriented either southwest or northwest. Those that face southwest are clad in BIPV while those facing northwest have vision glass. The scheme provides both adequate area for generating electricity and generous windows for indirect daylight and views, says project architect Andreas Sedler.

The curtain wall BIPV, which is part of an extremely efficient and airtight envelope, consists of the monocrystalline cells attached to the back of the exterior glass and mounted on an aluminum-tube frame. The frame allows for a ventilated airspace behind the PV panels—a critical detail, since the efficiency drops if heat from the cells builds up.

Although the clients from the city government had been concerned about using a wall of black PV panels on a kindergarten, they are pleased with the result. "The polished glass has a mirror effect that reflects the sky and changes color throughout the day," says Sedler.

NEW FACETS

The BIPV system for a new interpretive science building in the Denver Botanic Gardens demonstrates that the industry is progressing toward flexibility and customization. Meant to allude to the collision of the tectonic plates that formed the Rockies, the abstracted pyramidal form of the Science Pyramid is made up of two vaulted segments separated by a strip of glazing. Completed in 2014, the honeycomb-patterned skin has inserted hexagonally shaped monocrystalline BIPV cells on the south and west facades.

It took some effort for the architects at Denver's Burkett Design to find a company to fabricate the hexagonal panels, according to Burkett's project architect Ben Niamthet. But they eventually located a BIPV manufacturer that could make the complex shapes.

The cells are part of a rainscreen system that includes electrochromic glazing units, which automatically darken in strong daylight to shade the building's interior. Hexagonal fiber-cement panels make up the opaque areas of the skin. A stout tubular steel structure supports a 21-inch-thick multilayered wall-and-

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DYNAMIC SKIN Burkett Design's Science Pyramid (above and right) at the Denver Botanic Gardens includes BIPV cells and electrochromic glazing—both hexagonally shaped.



roof assembly. A ventilated 6-inch cavity between the rainscreen and the insulated shell keeps the solar cells from overheating and helps cool the building.

The 55 BIPV panels, on both the south and the west sides, are expected to generate 9,356 KWh of electricity annually.

Michael Woodhouse, a technology analyst at the National Renewable Energy Laboratory, explains why placing PVs on multiple facades can be a good strategy, even though the optimal orientation in the northern hemisphere is to the south, at an average angle perpendicular to the sun's rays. An orientation solely to the south doesn't always provide the right amount of power at the right time, he explains. An east or west configuration can fill the energy production "shoulders"—times when a south-facing module's output falls off. This strategy can benefit the occupants by changing the production profile over the course of the day and can simulate expensive tracking devices that mechanically adjust the PVs to the optimum energy-generating orientation.

A SUNNY FUTURE

One bright spot for BIPV is the number of recent advances in research and development. Commercial thin film materials tend to be expensive, and many contain toxic heavy metals. Organic photovoltaic (OPV) cells show promise as an inexpensive, more environmentally friendly alternative, according to Woodhouse. Organic, in this case, refers to photovoltaic materials composed of common elements such as carbon, hydrogen, and oxygen. In recent laboratory tests by the German company Heliatek, OPV achieved an efficiency of 13.2 percent. Mass production of such OPV films, which are not yet readily available, could bring the concept of cloaking more structures in BIPV closer to reality.

Another promising technology is the white and colored crystalline solar modules developed by the nonprofit Swiss research organization CSEM. The surface of the modules allows energy-producing infrared light through while scattering selected parts of the spectrum. In addition to having the ability to be produced in any color, the opaque surface treatment obscures the cells and wiring to create a monolithic appearance. The film could be used on any conventional panel and for retrofitting an existing system.

A number of companies are also manufacturing solar glazing—a transparent or tinted photovoltaic coating applied to glass. This product allows PVs to be used in place of typical vision glass.

The cost of generating electricity with PVs is now competitive with fossil fuels in many U.S. markets. But for BIPV, the question remains: will lower costs and innovation give the industry the kind of momentum needed to push it into the mainstream? "We have some catching up to do with Europe," Gregory Kiss says, "but I'm optimistic that BIPV will someday constitute a substantial portion of the cladding for our buildings and infrastructure." ■

Michael Cockram is a freelance writer and director of Bowerbird Design in Fayetteville, Arkansas.

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Learning Objectives

1 Explain the difference between PVs and BIPVs.

2 Describe the performance properties of thin-film and crystalline solar cells and explain how they are made.

3 Explain the strategies employed on recent projects intended to maximize BIPV power production.

4 Describe new BIPV technologies.

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Designing for Multifamily Housing

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The Shift to Modular Refrigeration

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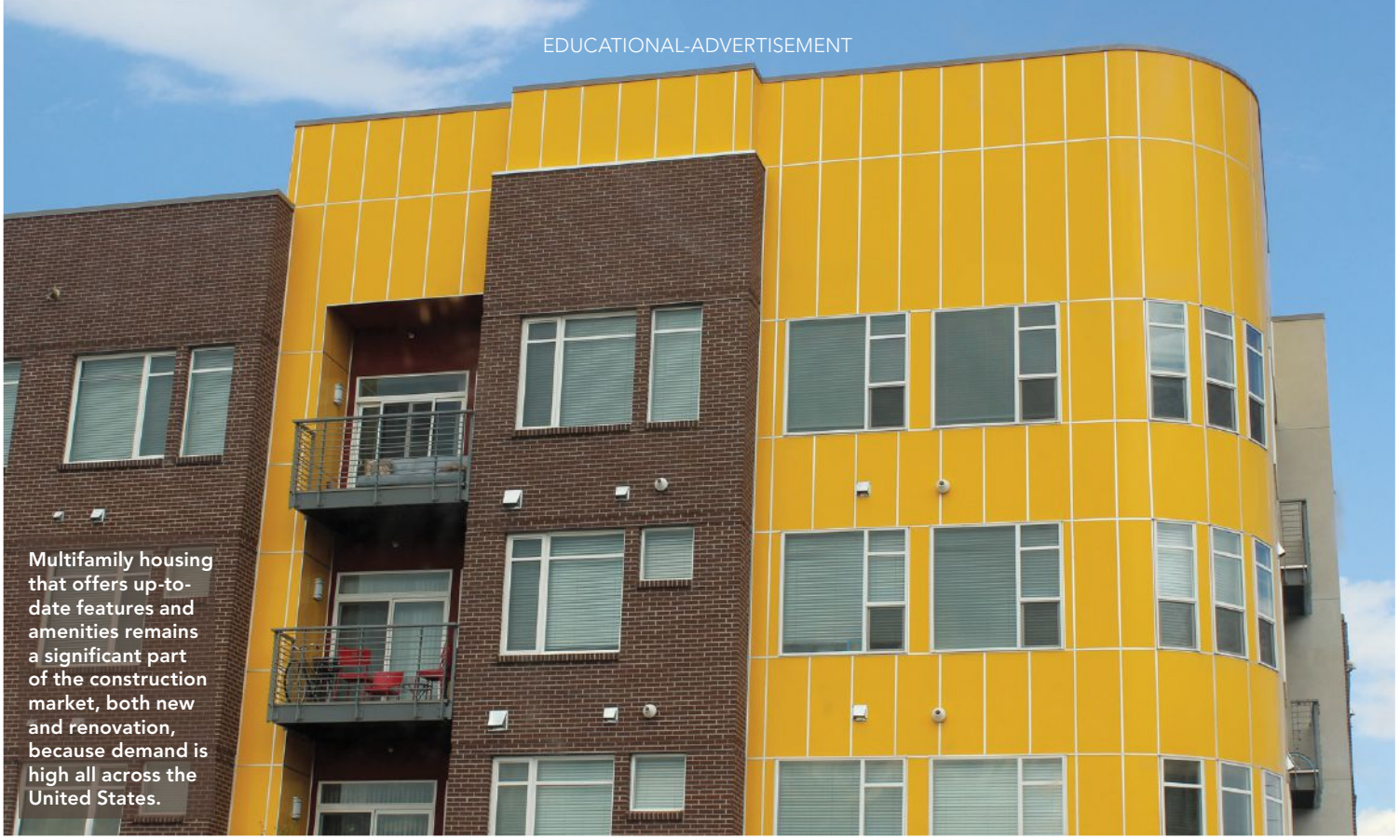
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Multifamily housing that offers up-to-date features and amenities remains a significant part of the construction market, both new and renovation, because demand is high all across the United States.

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Designing for Multifamily Housing

Keeping up with improved aesthetics, efficiency, and comfort levels

Sponsored by Eldorado Stone, MP Global Products, NanaWall Systems, New Millennium Building Systems, TAMLYN, Tarkett, and Tournesol Siteworks | *By Peter J. Arsenault, FAIA, NCARB, LEED AP*

The news on multifamily housing remains good. The largest lenders in housing, Fannie Mae and Freddie Mac, expect to break more records in 2016 in their lending on multifamily properties. They both had a very busy 2015, and according to John Cannon, senior vice president of multifamily production, sales and marketing for Freddie Mac, "I think our activity is going to be higher in 2016 than last year." That is impressive since Freddie Mac lent $47 billion to apartment properties in 2015, which was up more than 66 percent compared to 2014. Fannie Mae wasn't far behind, lending $42 billion in 2015.

All of these numbers and trends are interesting because their federal regulator, the Federal Housing Finance Administration (FHFA), has set limits on how much they can lend to multifamily housing at $30 billion. Those limits came from the government seizure of these two lending agencies during the recent financial crisis. However, in 2015, those limits loosened such that lending to affordable housing properties and "workforce" housing properties no longer counts toward their $30 billion limits. Strong demand for loans for this type of housing as well as others was the main reason that Fannie Mae and Freddie Mac lent so much in 2015. With the ability to lend to a wide portfolio of properties beyond their otherwise imposed limits, they are poised to continue to meet that demand in 2016.

Driving that demand are developers who are in turn responding to a very robust market. Instead of just catering to luxury high-rise projects, it seems that a mix of settings, building types, sizes, and amenities are all responding to different market needs, as people of all ages seek multifamily living environments suited to their lifestyles. As architects and designers of these new and renovated buildings, it behooves us to stay abreast of available options, systems, building components, and features that we can bring to multifamily projects. Accordingly, we can satisfy both the developer clients and the end users who will live with and in the vibrant spaces we create as part of a larger community.

ENHANCED EXTERIOR BUILDING DESIGN

Let's start by looking at the exterior of multifamily buildings. This is an area where aesthetics and curb appeal loom large in the interest of marketing a project and providing some satisfaction to those who live there. Additionally, the exterior systems make up the building envelope, which

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Learning Objectives

After reading this article, you should be able to:

1. Identify trends in the multifamily residential market that are driving consumer demand and continued development.
2. Investigate the design potential and innovative opportunities to create building facades that combine high aesthetics with high performance.
3. Assess the innovative ways to incorporate design strategies for outdoor spaces and indoor/outdoor connections.
4. Determine the opportunities for improving floor structures, underlayments, and finishes that can enhance the multifamily living experience.

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Exterior cladding with various types of aluminum trim contribute to a wide variety of exterior design approaches for multifamily housing projects.

needs to provide the requisite barriers for air, vapor, weather, and thermal control. Successfully bringing the aesthetics and the performance together requires attention to both the overall design and the details. Some examples of systems that do just that follow.

Exterior Cladding Treatments

In the interest of satisfying aesthetic solutions that support human scale as well as cost effectiveness using lightweight materials, many new types of exterior cladding materials have entered the market. Some are thin composite panels, some are ceramic, and some are metal. They all offer different visual choices and evoke different design strategies depending on how they are used, but they all need to be mounted and held in place appropriately. Further, they need to have the panel edges addressed to create trimmed or trim-less appearances, or if siding is used then some trim is needed to contain the edges.

Recognizing the varying design needs, there are panel and siding trim systems available that cover a wide range of appearances. These include different systems of profiles that can work together to create a total design solution without changing manufacturers. Such trim products are designed to work with most siding, panel, and product offerings so compatibility should be fairly straightforward. Different finishes are readily available, including anodized, painted, powder coated, and primed, allowing for a scheme of matching or contrasting appearance. This means architects have the ability to detail the exterior with different options, from wide horizontal breaks, verticals that are accented or fade into a monolithic form, and corners that offer open reveals or closed sharp angles.

Val Glitch, FAIA, is an architect who has looked at a number of options and says, "The alternative to premanufactured trim? Wood trim gives a very different aesthetic. It is bulkier and, for water infiltration concerns, can only be used for vertical joints. We could have had a metal shop make up the trim pieces, but that's not always a good way to get a quality, consistent, cost-effective product. And the heavier-weight manufactured trim that we use makes it easier to install the product properly." Russell A. Hruska, AIA, goes on to observe that, "Using trim over panel joints becomes an architectural element and is a way of expressing the joints and defining their deliberate placement. It adds a level of architectural refinement."

Manufactured Stone Veneer

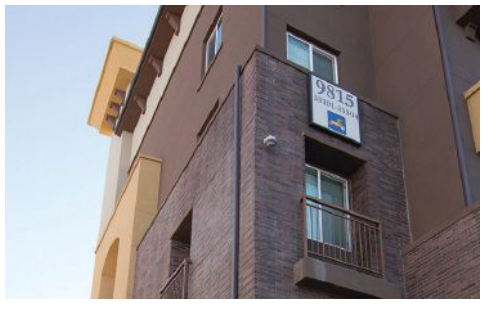
An alternative to smooth-surfaced cladding panels, manufactured stone veneer can add texture to multifamily building facades. As a lighter-weight product than full thickness stone or masonry, it can be incorporated into projects of all types and sizes with about half the weight and cost of natural stone veneer. Further, manufactured stone provides greater quality control on color consistency throughout a large project. Manufactured stone veneer has become popular for part or all of a building facade in multifamily projects for a variety of reasons. First, it is indeed a stone product, making it very durable and able to stand up to the rigors of a heavily used building. Second, it is easy to detail, with a full line of manufactured accessories available to allow realistic transitions across corners and other building conditions. Third, it is easy to install, including the option to panelize to make installation quick for large projects. Quicker installations mean shorter building construction times, which usually translates to cost savings. Compared to natural stone, architectural stone veneer provides the advantages of lower weight, easier installation, less waste, controllable color palettes, and lower price.

Natural materials like stone not only speak to environmental awareness, they evoke a sense of connectivity to nature. Stone's inherent characteristics of texture and warmth have been used on buildings to help define and highlight the design of both interior and exterior wall surfaces. As such, architects and designers have been able to incorporate products that transform ordinary environments into unique and memorable spaces. There is an abundance of choice and variety available with dozens of stone profiles and more than 150 different colors on the market, offering a full range of palettes, shapes, and textures.

Architectural stone veneer can be applied to interior or exterior locations in multifamily buildings. Selecting the right stone and color can make the difference between an ordinary project and a true showcase. Stone textures, styles, and color palettes range from contemporary clean lines with monochromatic colors to rustic irregular shapes with rich, bold color variation. Manufacturers stay innovative by working closely with designers and architects to develop new stone profiles and colors, which drive the trends in the industry.

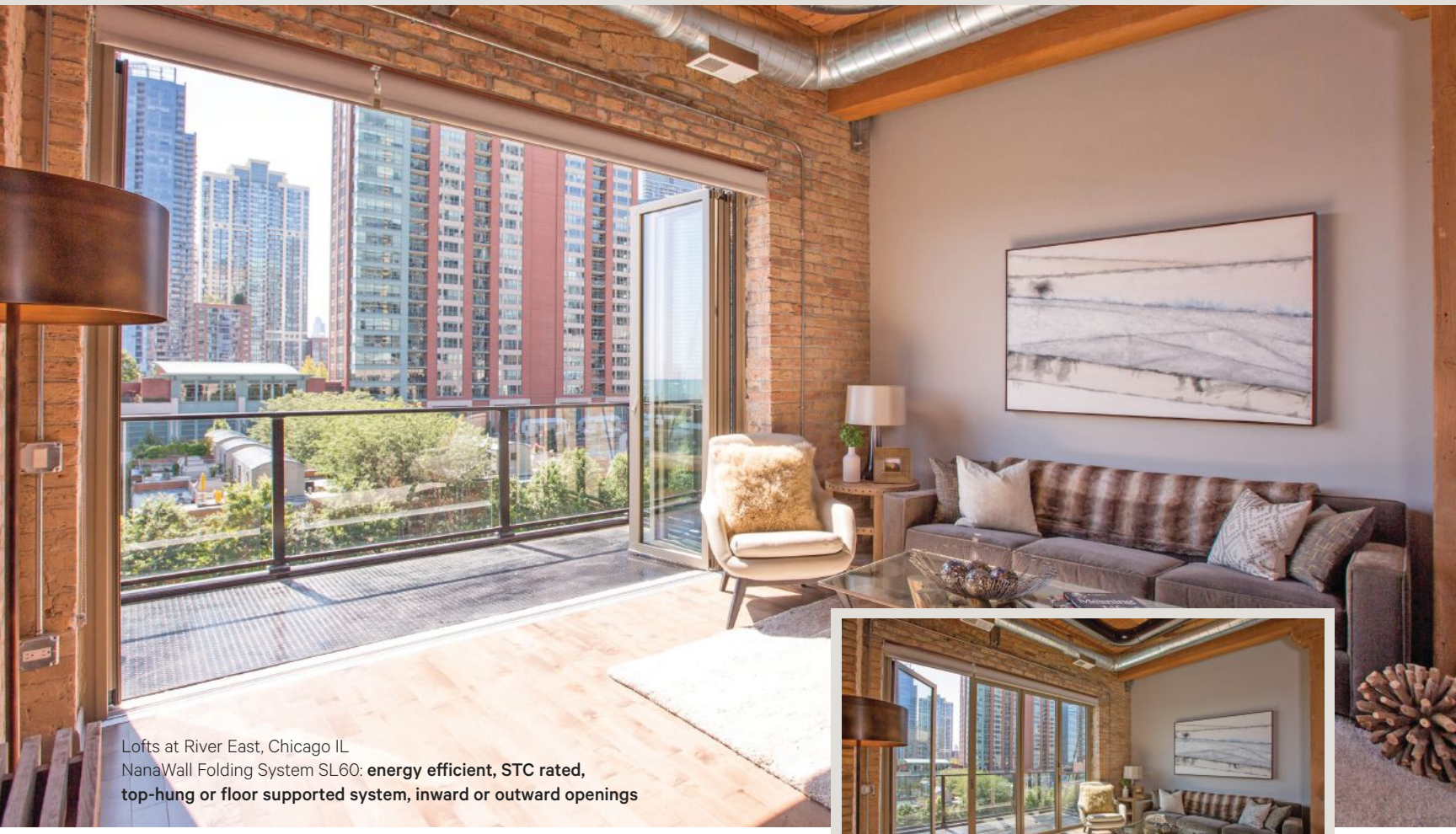
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Architectural manufactured stone veneer can be used creatively in a variety of ways to enhance the texture and color of a multifamily building facade with quicker installation and less cost than conventional stone.

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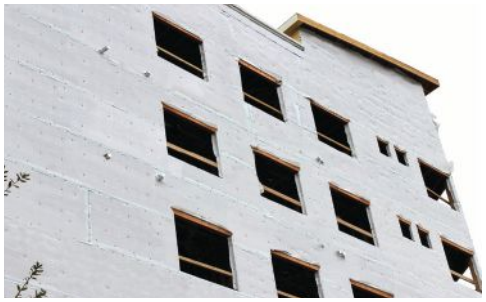
Moisture Management System

Beyond the appearance of a building facade, a critically important performance aspect is the way that moisture is controlled behind the exterior cladding. Designing a wall assembly with a gap between the finished surface and the substrate has been recognized as a key performance enhancer. This is true because it helps to reduce the hydrostatic pressure on the substrate and allows water to drain out of the wall cavity. Through testing per ASTM E2273, it has been shown that a gap of 1 millimeter or greater provides 96 percent drainage efficiency. The Building Science Corporation of Canada has noted that, "The measured drainage rate of a 1-millimeter gap is greater than extreme driving rain intensity for the worst climate in Canada."

With this understanding in mind, there is a new segment in building wrap materials that creates such a gap by using an applied surface treatment to the wrap. This produces a micro rainscreen and a fully functioning drainage plane behind the cladding and in front of the substrate. Properly detailed and installed, this type of drainable building wrap helps to handle the moisture that is inherent in exterior wall assemblies. Combined with a compatible tape for the seams of the building wrap, it helps maintain a continuous, overlapping, secured installation. This is the preferred approach for effective moisture management by many members of the building science community. Jon Standley, the project manager for a multifamily project known as Texan 26, notes, "This approach was chosen for the effectiveness as a drainage plane under multiple siding products and for maintaining its gap once installed." It is expected to help keep the facade performing properly and looking good not just at first installation, but for many years to come.

Images courtesy of TAMLYN





Strategically located spacers provide an intended drainage gap on a synthetic, non-woven, breathable building wrap product.

CONNECTING INDOORS AND OUTDOORS

The exterior of a building is usually thought of in terms of keeping things outside that belong outside, but there are plenty of times when people want to connect with the outdoors, too. That connection could be in terms of windows or doors that allow visual or direct access to patios or other private spaces. It could also be through the creation of outdoor spaces specifically designed to be used and enjoyed by residents and visitors to multifamily buildings.

Opening Glass Walls

Many multifamily housing projects of all types include an outdoor balcony, porch, deck, or similar space as part of a living unit. This is often a very sought-after trait by the people living in the units, which means they also add value to the property for the building owner. Commonly, the access to such a balcony or porch is through a swinging or sliding glass door. However, there is an alternative that is proving to be very effective at adding a "wow factor" to living units in the form of opening glass walls. These are made up of multiple glass panels in either wood or aluminum frames that fold or slide to create a continuous opening between the indoor living space and the outdoor balcony or porch.

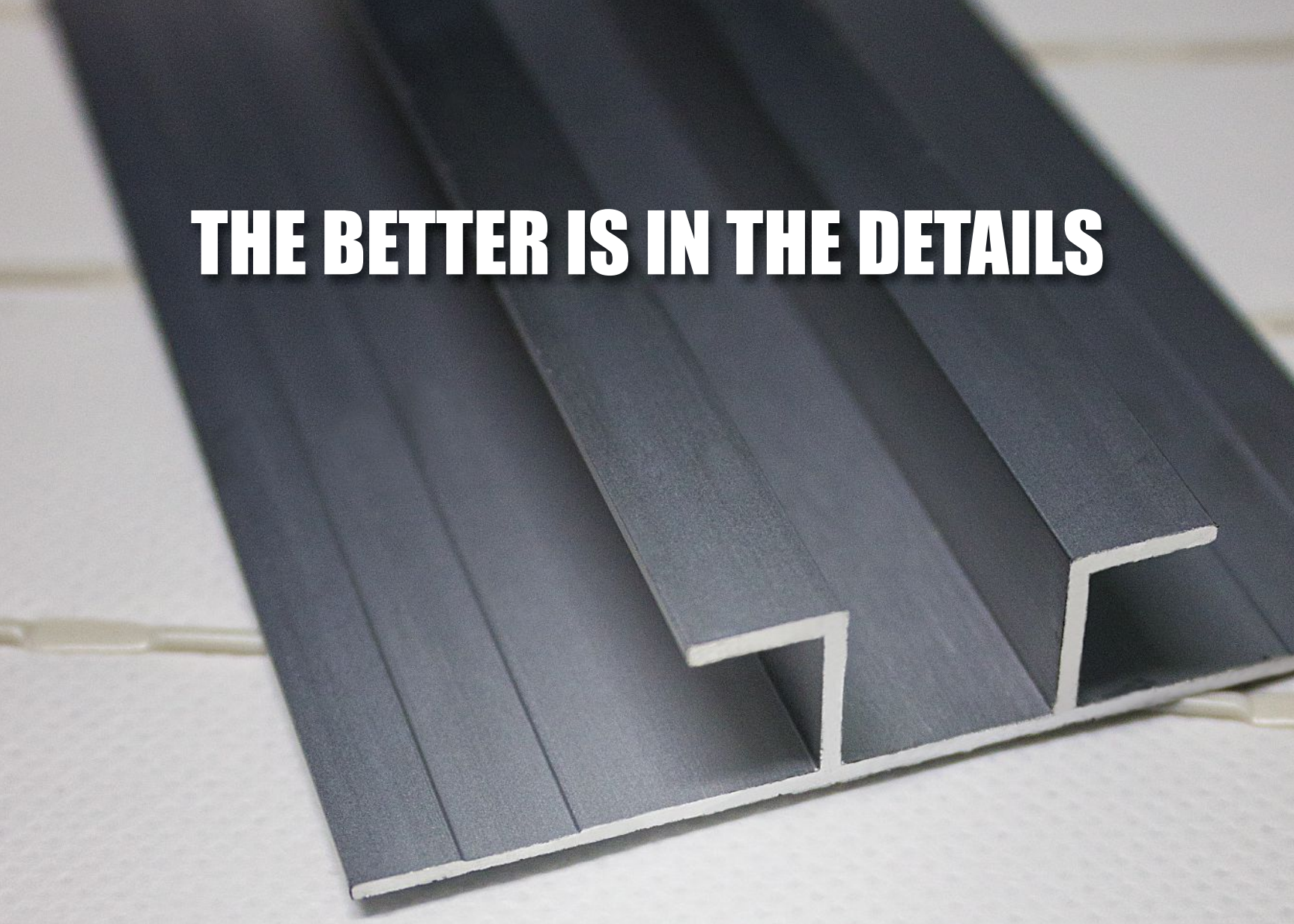
Opening glass walls respond to consumer demand for connecting to the outdoors and can differentiate a multifamily property from others on the market that only use a single door. Opening glass walls provide building owners, architects, property managers, homeowner associations, and contractors with a solution for increasing usable space by allowing the balcony to feel like a direct extension of the living space. It also helps the living unit connect directly with the outdoors in a more natural and appealing manner to take advantage of days or nights with favorable weather. This sense of creating more living space has been used on balconies, porches, and even shallow Juliet balconies. In all cases, they have been shown to enhance the living unit's value and the marketability of the entire development.

When it comes to the thermal performance and comfort of operable glass walls, it should be noted that all manufacturers are not alike. It is important to compare the performance characteristics of different products to be sure that they can meet the specified performance requirements. This will be true for the thermal performance of the products in terms of R-value or U-factor for energy efficiency and for occupant comfort. It will also be relevant for resistance to wind load and air-and-water infiltration performance requirements, particularly for mid-rise and high-rise buildings. When specified and used appropriately, opening glass walls can provide year-round benefit with an indoor/outdoor atmosphere, fresh air ventilation, and natural light in condos and apartments, particularly those with otherwise limited natural light sources.

Photo courtesy of NanaWall Systems



Opening glass walls used in apartments and condo units can extend the usable living space to outdoor balconies and porches, while sealing tightly when closed.



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Common Outdoor Areas

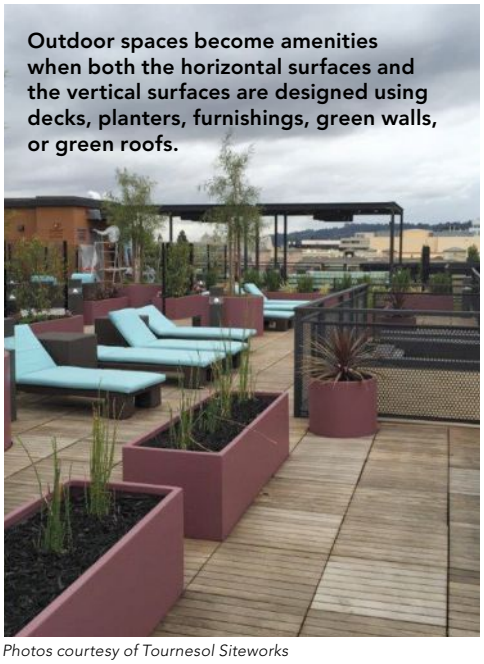
Beyond private outdoor spaces, most multifamily facilities contain common outdoor areas. These can be intentional spaces for recreation, gardens, or gathering, or they can be part of an outdoor circulation system, such as walkways, paths, etc. Either way, on-site outdoor spaces are viewed as an amenity area, and they continue to be one of the most desirable features in multifamily construction. This means that such spaces need to be identified for location within the facility, and then they need to be designed.

There are two ways that outdoor spaces are enhanced by design—one on the horizontal plane with vegetation, plantings, furnishings, or other features, and one on the vertical plane with vegetated or green walls. The horizontal design starts with a determination of the use and type of surface needed. In open courtyards, that could be grass, pavers, decking, or other similar materials. On rooftop settings, it could be similar, but could also be a green roof design intended for plantings of one type or another. The underlying structure of any of these locations needs to be taken into account, particularly if it is not level or intended to be made level. In those cases, the surface will need some form of adjustable supports that will allow for a level horizontal surface. There are many such systems available, and they are designed for ease of use, long-term durability, and proper drainage.

Once the surface is finalized, then other appropriate features can be added, such as seating, tables, planters, water features, garden features, recreational items, or whatever else suits the intended use of the outdoor space. If plantings are part of it, then attention needs to be given to how they are watered and maintained, as well as how they are installed. If the surface is not directly on the ground, thus allowing for direct plantings in the earth, then some form of pot or planter will be needed to provide a growing medium and water irrigation system. Some manufacturers do offer a self-irrigation system based on using an insert in a large pot that holds a reservoir of water and allows it to be wicked up on demand by the plants. Then the reservoir is simply topped off as needed.

"Green walls" is an all-encompassing term that is used to refer to all forms of vegetated wall surfaces. However, there are two major system categories that fall under this term's rubric: green facades and living walls. Green facades are systems in which climbing plants or cascading groundcovers are trained to grow onto and over specially designed supporting structures, such as a trellis. A living wall, by comparison, is an integral part of an exterior building envelope system or an interior wall. In either location, a living wall is comprised of distinct panels that are either pre-vegetated or planted on-site and include growing medium or liquid nutrient.

When architects are considering any of these natural outdoor amenities, they are often seeking to work with a manufacturer to maximize the design opportunity or to help assure successful growing. This can be especially true on green roofs or green wall designs. Fortunately, that assistance is available from one or more manufacturers who have built up their design and project management teams to support the architectural and construction functions. They offer a wide range of products that make an architect's job easier for amenity space design but may also offer to modify their existing products or create solutions from scratch. This ability to customize the outdoor amenities designs can truly help take a project to the next level.



Outdoor spaces become amenities when both the horizontal surfaces and the vertical surfaces are designed using decks, planters, furnishings, green walls, or green roofs.



Photos courtesy of Tournesol Siteworks

TOTAL FLOOR SOLUTIONS

Floor construction in multifamily housing of all types is a significant factor in the way people perceive the quality and comfort of a living unit. It also impacts fire resistance, acoustics, longevity, appearance, and the budget. Let's turn our attention to some of the important decisions that can impact this critical aspect of construction of multifamily buildings.

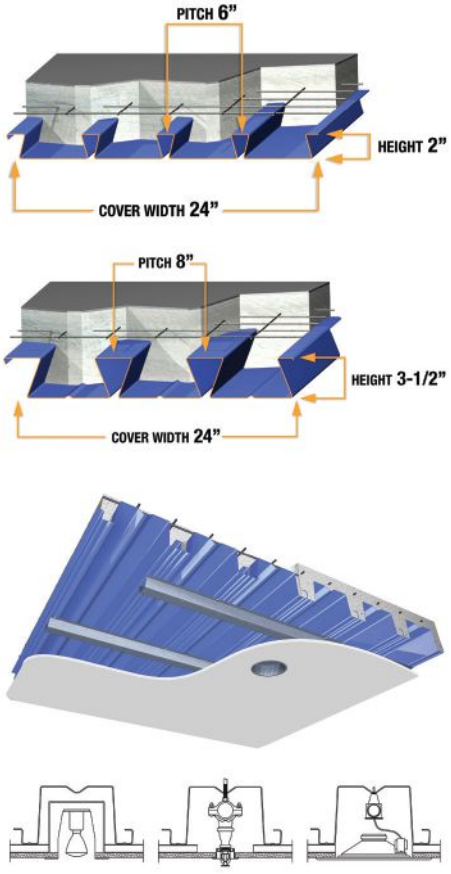
Composite Floor Structures

When designing multi-story multifamily buildings, there are a number of ways to provide the floor structure. One that has been gaining in popularity is the use of composite steel deck and concrete floor systems, which combine features beneficial to any multifamily housing design. Architects have been particularly interested in this system when they recognize that floor type selection encompasses more than structural design. Floors influence space design and convertibility, sound transmission, room temperature, and fire resistance. Composite steel and concrete systems address all of these factors favorably. Further, they install quickly to help keep schedules in line, integrate with any type of support frame, and are completely adaptable to MEP pass-through needs. From a ceiling finish standpoint, composite steel and concrete systems can be exposed and direct finished or covered with a ceiling material of choice.

The key to the composite system is the metal deck that connects to the structural steel frame and receives reinforced concrete above it. The size and height of the metal deck profile directly influence its structural strength and maximum span capabilities. A fairly shallow system with a metal deck on the order of 2½ to 3½ inches in height and a total height of 4½ to 7 inches with the concrete in place can typically span 12 to 25 feet. Taller composite deck systems on the order of 8 to 11½ inches are capable of spanning 25 to 36 feet. These are dramatically thinner floor systems than other conventional floor framing systems of wood or steel, which can require two or three times these thicknesses for similar structural span capabilities. It should be pointed out that other systems may also require additional thickness to match the two-hour fire rating of the concrete and steel composite system. Also, in taller systems, the composite system can be applied to the bottom flange of structural steel beams, thus creating an "upset" beam condition, eliminating the beam from being exposed down into the living space. Alternatively, a composite beam that incorporates specifically fabricated steel profiles with structural concrete fill can be incorporated with similar low-profile capabilities.

The implications for using this type of system in multifamily buildings are numerous. We have already noted the very favorable span-to-depth ratio compared to joist systems, which can translate into fewer supporting columns

Images courtesy of New Millennium Building Systems



Composite concrete and steel floor systems gain their strength from the shape and height of the metal deck that receives the concrete. In some profiles, the underside spaces are large enough for small utilities to be run, such as lighting, sprinklers, or sound components.

or walls. The shallower floor system depth provides designers with greater control of the floor-to-floor heights and the overall building height, allowing either higher ceilings or a potential increase in the number of building stories where zoning ordinances limit overall building height. From a usability standpoint, acoustics can be enhanced such that the sound transmission class (STC) and impact insulation class (IIC) results can be a very favorable rating of 60 or more. Fire-resistance of the non-combustible system can achieve two- or four-hour ratings (unprotected), which makes it ideal for many multi-story settings. Placement of mechanical, electrical, and plumbing features are simplified using cast-in-place sleeves or reinforced slab beams at larger openings such that no concrete sawing or hole-cutting is required. Further, in some deck systems, the profile forms a series of plenums that are available for conduit, small light fixtures, plumbing lines, sprinklers, and other items.

Since this type of composite floor system can be customized and installed by steel and iron workers, some manufacturers offer specialty support services for both design and construction. This can include determination of shoring needs (if required) and specification of deck, concrete, and slab reinforcement requirements based on construction and in-service loading and floor penetration requirements. On-site training can also be provided for quality control covering the use of specialized tools and installation procedures. Overall, this integrated approach helps coordinate efforts between the design team and deck manufacturer so that job-site deliveries and installation can meet the project schedule.

Flooring Underlayment

Once the floor structure is in place, it is important to consider selection of an underlayment that, installed between the structural surface and the finish flooring, can add real value to the overall floor assembly. Underlayment improves resilient floors, such as vinyl or linoleum, but also works particularly well under hardwood, engineered wood, laminate, luxury vinyl, and tile floors. Flooring underlayment, typically sold in rolls or sheets, can be specifically engineered to achieve particular goals. These may include improving acoustics by deadening sound in a room and to rooms below, helping manage unwanted moisture, and helping ensure a smooth and warrantable surface for the installation of the finish flooring. In addition, some underlayment products are designed with sustainability in mind and are carefully manufactured to meet the most rigorous standards for indoor air quality (IAQ).

Careful selection of a particular underlayment can be an important factor in multifamily housing when aiming to minimize sound transmission between floors, whether from people walking on the floor, from items that bounce or drop, or from loud music or TV—all sounds that can annoy downstairs neighbors and, possibly, lead to complaints from tenant to landlord. This is true for any type of flooring but particularly for hard surface flooring. When looking to install a floor assembly that can achieve "less noise" between floors, look for acoustical underlayment that has been tested for and carries good STC and IIC ratings that exceed the minimum requirements.

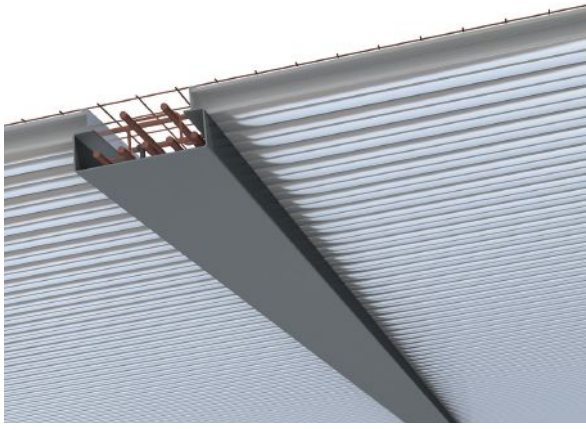
The ability of an underlayment to address moisture management helps protect the finish flooring from moisture that may be released from the subfloor. That moisture might come from wood or concrete that is not 100 percent dried when the flooring is laid down. Some underlayments are engineered to prevent moisture from pushing up and causing damage, separation, or mold growth under the flooring. An underlayment that is designed to address moisture management may also have the ability to wick moisture to the edges where it can evaporate over time, as long as the source of the moisture is addressed.

In cases where a fire-rated assembly is important, specifying an underlayment with attributes that enhance the performance of the floor can benefit the new floor, from installation all the way through the life of the floor. Common practice, particularly where a fire-rated assembly is required in a wood framed building, is to embed a sound control mat on top of the subfloor before gypsum concrete is poured. There are also acoustical underlayments that do not need to be embedded in the gypsum concrete but rather placed on top beneath the finished flooring, which provide the needed sound control and potentially reduce project costs. Certain fiber underlayments will not only help dampen sound but also add a variety of performance-enhancing benefits to the base of the flooring material, without impacting the fire rating.

For projects designed to meet green building standards, there are underlayments available that combine many of the aforementioned attributes and are made from materials that address environmental concerns. In fact, some

Images courtesy of New Millennium Building Systems





Composite floor metal deck systems can be designed with "upset" structural steel beams or with specially fabricated composite steel and concrete beams.



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resource-friendly underlayments are third-party certified to be made entirely or substantially from recycled materials, which can be used to contribute to earning LEED credits in the Material and Resources category. Some of these products may also be certified as manufactured from low-emitting materials, satisfying criteria for contributing to earning credits in the LEED category of Indoor Air Quality.

Underlayment products are available in a variety of materials, including rubber and textiles that can meet all of the above needs for multifamily projects. For multifamily housing projects where multiple types of hard surface floors will be used, it can be a very good choice to select a single universal underlayment that can be laid under all of them. Universal rubber underlayment made from 100 percent virgin latex rubber, for example, can have a well-formulated mix of physical properties that make it suitable for use under a variety of flooring choices. If the project has flooring that needs to be installed in a variety of ways, universal underlayment is available that can also be installed in numerous ways. It can be floated, nailed, stapled, single-glued or double-glued, thus further enabling use of one product across a project. Some of the properties to look for in such universal underlayments include thickness, density, and thermal resistance (measured as an R-value). If luxury vinyl is being used, then it is also a good idea to specify an underlayment with a compression set of at least 15 or 16 percent, which helps minimize impressions and indentations. As for acoustical performance, the IIC and STC ratings are generally excellent with this type of universal underlayment. For example, one product, when tested in an assembly made up of a 6-inch concrete subfloor, no ceiling assembly, and luxury vinyl planks covering over the acoustic underlayment, resulted in an IIC-52, a rating that exceeds the standard for many high-rise installations. That underlayment also carried a Green Label Plus Certification for Low-Emitting Materials and is recyclable at the end of the underlayment's useful life.

A second excellent choice of material for high-performing acoustic underlayment is one made from recycled textile fibers. This type of product is designed specifically for use under glue-down or nail-down hardwood and engineered wood floors. In addition to dampening impact noise and decreasing airborne sounds from traveling to the room below, it also protects flooring from potential plank gapping. A premium upgrade is found in an acoustic and insulating pad designed especially for floating wood and laminate floors. This type of underlayment has superior acoustic capabilities, is available VOC-free, and can contain 94 percent post-industrial/pre-consumer fibers. This premium textile-based product has filaments that are randomly air-laid, creating a capillary effect to cushion the floor, absorb sound, and help make laminate floors sound more like real wood. The underlayment can also use the capillary effect to absorb and wick moisture away to the edges of the flooring where it can be released to the air.

Regardless of the type of product specified, acoustic underlayment enhances the performance of the overall floor assembly in multifamily housing units. The choices available address the varying needs of specific types of floors or buildings. In multifamily housing projects where sound control between floors is important, acoustic underlayment can make a very noticeable and positive difference.





Flooring underlayment is available in a variety of material and product types that can improve acoustical performance of floors, help control moisture, and assure the long-term performance of finish flooring.

Photos courtesy of MP Global Products

Healthier Flooring

Most flooring products (i.e. those that constitute finish flooring) have been on the market long enough to be proven for different applications and are available in a wide range of colors, patterns, and textures. One characteristic that has emerged to differentiate products and manufacturers from each other is related to the health impact of flooring products on people. Different types of flooring go through different manufacturing processes and may rely on the use of volatile organic compounds (VOCs). VOCs, both man-made and naturally occurring, are an expansive and ubiquitous class of chemicals that are transmitted through air. Some types of flooring have commonly contained high levels of the VOC formaldehyde, a carcinogen linked to cancer and respiratory problems.

A growing consumer awareness of indoor-related health issues in general, along with green building standards in particular, have brought a spotlight onto the effect that VOCs and other chemicals in flooring can have on the indoor air quality inside a building. According to the Environmental Protection Agency (EPA), indoor air quality is one of the its top environmental risks to public health. Residents of multifamily housing units are among the people who are both concerned and affected by this environmental health issue, particularly when those residents spend considerable portions of their days indoors. With an increased concern about the health effects that chemical leaching from building products may have on IAQ, the motivation exists for manufacturers to reduce or eliminate any emissions from the flooring products that they make. It is also the motivation to seek out those products that are successfully doing so.

When looking at products with VOC content, it is important to understand both the VOC (individual chemicals emitting) and the TVOC (total volatile organic compound) levels attached to the product. Certain individual chemicals may exist at acceptable levels in a product, but the combination of all of them expressed in the TVOC may be problematic. The latest version of the USGBC LEED rating system recognizes the importance of TVOCs by requiring a total disclosure of potentially harmful chemicals. It also



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looks at the TVOC in a space such that not only flooring, but walls, ceilings, and furniture VOCs should be added together to identify the total exposure a person has in a space. The USGBC identifies the very low level of 500 micrograms per cubic meter or less as the goal.

Separate from VOCs, vinyl flooring manufacturers have commonly added phthalates, specifically ortho-phthalates, to increase the flexibility, transparency, durability, and longevity of the flooring. Some recent studies have revealed that phthalates migrate out of flooring products and mix with dust, which may create asthma and allergy issues for inhabitants. Specifically, ortho-phthalates have been identified as endocrine disruptors that may cause asthma/allergies, change in baby boys. The good news is that at least some flooring manufacturers are now reducing or eliminating these potentially harmful chemicals from their products. Those are becoming the sought after products to specify.

One of the ways to know whether or not a flooring product is safe and appropriate for use in multifamily housing is to specify products that carry an independent certification for health-related concerns. One such certification focused on IAQ is the Asthma & Allergy Friendly™ Certification. This program independently tests and identifies products for likely exposure to allergenic and irritant materials and then determines whether they are compatible with people living with asthma and related allergies. Certification categories include paint, cleaning products, flooring systems, filters for HVAC systems, and others.

Another program that has been widely used specifically for flooring is the FloorScore® Certification Program for Indoor Air Quality. This industry standard was developed together with Scientific Certification Systems (SCS) to test and certify flooring and adhesive products for compliance with indoor air quality emission requirements. A FloorScore® IAQ Certification means that a flooring product is independently certified by SCS to comply with identified volatile organic compound emissions criteria. Under this program, SCS 1) reviews all VOC emissions test reports for particular products generated by independent testing laboratories; 2) determines whether those test results meet the California Section 01350 requirements for listed VOCs; and 3) conducts periodic manufacturing plant inspections to review product formulas, processing, and quality control to ensure the continuing integrity of the FloorScore® seal. To date, hundreds of different resilient flooring materials and their adhesives bear the FloorScore® seal. Any such product that bears this seal is represented to have met the stringent IAQ standards and contribute to good indoor air quality.



Photos courtesy of Tarkett



Flooring manufacturers who put people first create finish flooring products that reduce or eliminate chemicals and compounds that can impact indoor air quality and resident health.

The U.S. Green Building Council (USGBC) has cited FloorScore® certified flooring products as eligible for credits under LEED 2009 and LEED v4. Reflecting the inclusion of FloorScore, the LEED IEQ Credit 4.3 for Low-Emitting Materials has been expanded from "Carpet Systems" to "Flooring Systems" to include hard surface flooring. Several LEED systems specifically cite FloorScore as an indicator of indoor air quality, including New Construction (NC), Commercial Interiors (CI), Core and Shell (CS), Healthcare (HC), and LEED for Homes. FloorScore® is also included in other important environmental rating systems, such as the Green Building Initiative's Green Globes, Collaborative for High Performance Schools (CHPS), Green Guide for Health Care, and EPA's Tools for Schools.

When selecting flooring to round out the design and performance needs of a multifamily housing facility, it is possible to use a single-source manufacturer with multiple flooring options to help coordinate from room to room and throughout the entire property. At least one has a coordinated program that allows architects and designers to choose flooring to suit specific multifamily needs. Whether flooring is needed for dwelling spaces, common areas, support spaces, or others, it is possible to specify quality flooring that is also certified to be healthy and safe. Whether selecting for laundry rooms, fitness centers, bathrooms, hallways, or spaces in between, the choices include laminate, luxury vinyl tile, wall base, carpet tile, and others. This means that it is now entirely achievable to select coordinated flooring designs that help achieve a safe and healthy environment throughout a multifamily housing project. That is good for everyone—designers, owners and residents.

CONCLUSION

Multifamily housing projects can be quite varied in type, size, and resident profiles. Nonetheless, understanding the options available for some key parts of the buildings can make dramatic impacts on the overall design of a new construction or renovation project. Further, paying attention to the details of manufactured systems and products can improve the performance of the building and allow the residents to be more comfortable, safer, and healthier.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP *is an architect and green building consultant who has authored more than 120 continuing education and technical publications as part of a nationwide practice.* ***www.linkedin.com/in/pjaarch***

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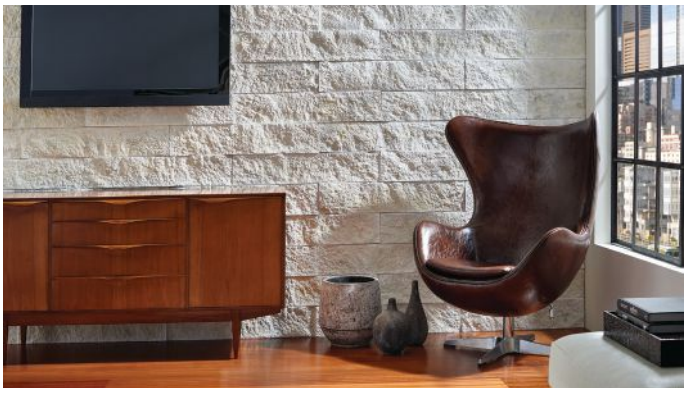
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PRODUCT REVIEW

Designing for Multifamily Housing

Eldorado Stone

Photo courtesy of Eldorado Stone



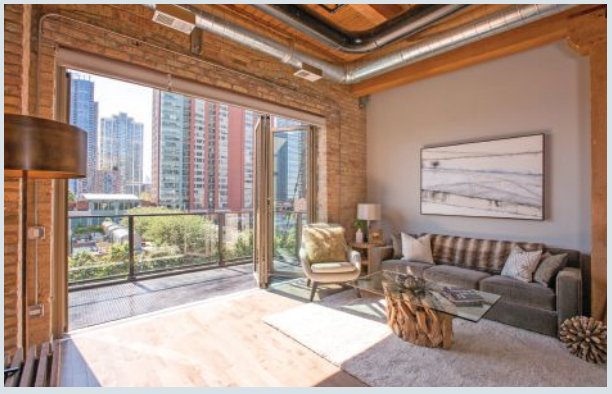
Modern Collection by Eldorado Stone

The Modern Collection by Eldorado Stone accentuates contemporary designs, as these stones pair refined color with clean lines to blend or contrast with neighboring elements. Minimal. Sensible. Perfect. Balanced. A natural showcase for palettes of wood, steel, concrete, or glass. The results are spaces that come alive.

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NanaWall Systems

Photo courtesy of NanaWall Systems



NanaWall Opening Glass Walls

NanaWall Systems provides building owners, architects, property managers, homeowner associations, and contractors with a solution for increasing usable space, enhancing each unit's value and the marketability of the entire development.

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MP Global Products

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Sound Buffer is a high-performing universal acoustic underlayment made from 100 percent virgin latex rubber for use under luxury vinyl, laminate, engineered wood, and hardwood flooring. It can be floated, nailed, stapled, or single- or double-glued.

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PRODUCT REVIEW

Designing for Multifamily Housing

New Millennium Building Systems



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Sound control in buildings involves attention to details, particularly in lightweight framed walls that use acoustical insulation to achieve desired results.

Photo courtesy of CertainTeed Insulation

Acoustical Control in Buildings

Mitigating sound transfer between spaces through design, details, and insulating materials

Sponsored by CertainTeed Insulation | *By Peter J. Arsenault, FAIA, NCARB, LEED AP*

Sound is present in all buildings and affects people in a space just as other types of energy, such as heat and light, do. Controlling all aspects of sound entering or leaving a room or building space is the essence of good acoustical design. Unwanted sound that is allowed to enter from outside of a building can be distracting or even harmful to people inside. Sound flowing between rooms or spaces in a building in all directions (i.e. through walls, floors, ceilings, etc.) can create similar negative indoor experiences. All of these aspects of sound in a building are important to a successful design much the same way designing a building to use desirable light while controlling undesirable glare is important. By taking a holistic approach to acoustical design as an integral part of architectural and interior design, a comprehensive, successful result can be achieved. Controlling the transfer of unwanted sound between spaces reduces noise, improves the indoor environment, contributes to sustainable design, and is ultimately good for the people who use the building.

FUNDAMENTALS OF SOUND

Sound is energy, and like all energy, it radiates outward from a source. It moves the same way that heat energy and light energy do by traveling through air, solids, and other materials. While there are many beneficial sounds that we want to hear as they travel through space, such as speech in a classroom or music at a concert, there are other sounds that we don't want to hear, which we call noise. This unwanted or interfering sound in building spaces can come from a variety of sources both within and outside of a building, such as outdoor traffic, activity in an adjacent room, or mechanical equipment.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP *is an architect and green building consultant who has authored more than 120 continuing education and technical publications as part of a nationwide practice.* ***www.linkedin.com/in/pjaarch***

CONTINUING EDUCATION

1 AIA LU/HSW

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Learning Objectives

After reading this article, you should be able to:

1. Analyze the background of acoustics and the fundamentals of sound as they apply to sound transfer between spaces.
2. Examine the science and emerging standards for limiting background noise in green schools, hospitals, and other buildings.
3. Assess the contribution that good acoustical design makes toward improved indoor environmental quality in green and sustainable building design.
4. Identify the elements that make up a holistic approach toward acoustical design and beneficial sound control.

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Image courtesy of U-Line



Modular refrigeration allows for a completely customizable kitchen space. This efficient kitchen choreography helps ensure a flow that accommodates today's trend toward zone kitchen design.

The Shift to Modular Refrigeration

Point-of-use appliances make for sleek, efficient, social kitchens

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Kitchen envy. It strikes at the sight of a sleek, well-designed, efficient kitchen With their striking cabinetry, textured countertops, and premium appliances, today's kitchens can be showpieces if not outright status symbols. Realtors tell us that the kitchen is often a key selling point in the purchase of a home and that remodeling a kitchen gives homeowners the greatest return on their investment. Admittedly, the kitchen has come a long way. Traditional kitchens were small and self-contained, primarily utilitarian spaces devoted to meal preparation and cleanup, and sealed off from the rest of the home. Social activity around food was the exclusive province of the dining room.

Kitchens have evolved. In the past two decades, the trend toward larger, multipurpose kitchens has taken root. The kitchen is the new living room, the communal center of the home, as walls are removed to create the feeling of more space and add a holistic quality to a house's layout. Today's trends are toward a more transitional design aesthetic and a more open kitchen design. Accompanying those trends are a rethinking and redeployment of the traditional role of refrigeration in the home kitchen.

This article will discuss the latest economic, social, and demographic developments that are impacting kitchen design and the role of modular refrigeration. Also covered will be the ways in which modular refrigeration contributes to the creation of functional spaces that reflect the changing domestic landscape.

MODULAR REFRIGERATION: WHAT IS IT?

The traditional big box refrigerator is experiencing dramatic changes. Many designers and consumers are opting to "disassemble" it, and locate the pieces strategically throughout the kitchen and elsewhere. Instead of a typical 84-inch unit, smaller refrigerator columns or fully hidden refrigerator drawers are being separated from the traditional freezer, opening up more counter space. In use since the 1990s, modular refrigeration gives users the flexibility to preserve the right product, in the right place, at the right temperature.

Continues at ce.architecturalrecord.com

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Learning Objectives

After reading this article, you should be able to:

1. Discuss contemporary trends in kitchen design as they reflect the health and welfare of home occupants.
2. Define the influence of the current social movement of aging in place, and how it impacts kitchen design and layout and the senior population.
3. Describe the impact of evolving technology and energy efficiency on kitchen appliances.
4. Explain the social and economic advantages of modular refrigeration, and how it contributes to green building goals and the well-being of families.

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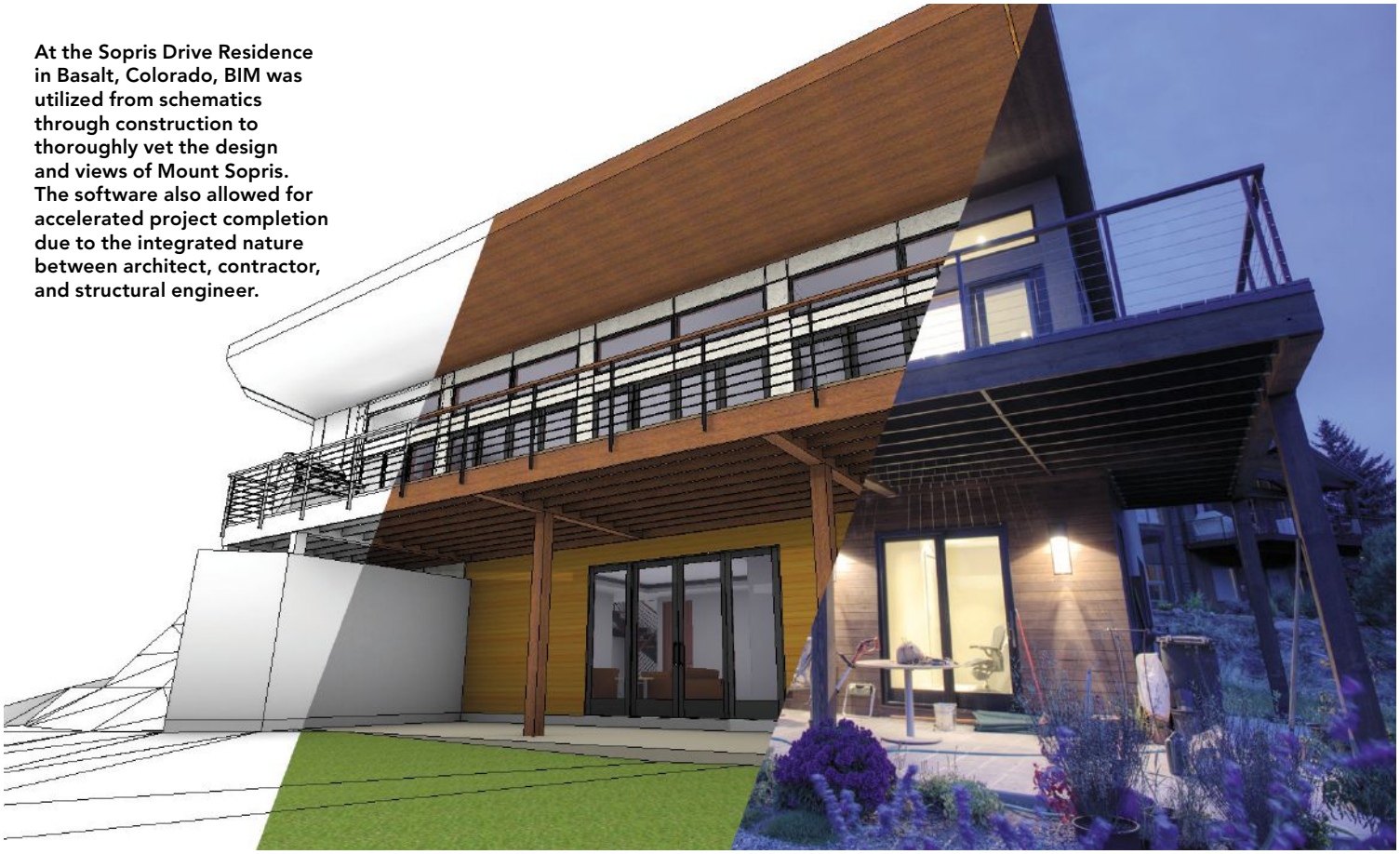
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Image courtesy of KA DesignWorks



At the Sopris Drive Residence in Basalt, Colorado, BIM was utilized from schematics through construction to thoroughly vet the design and views of Mount Sopris. The software also allowed for accelerated project completion due to the integrated nature between architect, contractor, and structural engineer.

Home Sweet BIM

Better engaging sophisticated clients in more complex residential design projects, BIM mobile viewing is a game changer

Sponsored by GRAPHISOFT®

Architects embarking upon the design of a new or remodeled home are discovering a new kind of residential client.

More sophisticated and informed than ever, today's homeowners are tapping into popular social media sites, like Houzz and Pinterest, where design ideas and photos are searchable and available. With more than 30 million monthly unique users perusing the pages of Houzz and 130 million boards pinned in Pinterest's Home Décor category, consumers have access to literally millions of ideas when it comes to residential architecture and design.

Supplementing these resources are television and YouTube channels, such as HGTV—fully focused on residential designs and DYI projects—and more mobile, tablet-based design apps.

"The amount of media is stunning," observes Monte Chapin, business process leader, GRAPHISOFT North America, Coeur d'Alene, Idaho. "Today, clientele have much more to add and articulate throughout the residential design process."

In place of a couple of torn-out magazine pages, homeowners are now approaching architects with a plethora of designs and photos and a much better idea of what they want their new/renovated homes to look like.

Homeowners can "easily search these sites for design solutions, products, and finishes that they like, and are often coming into projects with dozens, sometimes hundreds of inspiration images," reports Ken Adler, AIA, principal, KA DesignWorks, Aspen, Colorado.

But beyond these photos of modern kitchens, home entertainment rooms, and outdoor patios

CONTINUING EDUCATION

1 AIA LU/HSW

Learning Objectives

After reading this article, you should be able to:

1. Describe how BIM viewing software better engages residential clients and promotes enhanced communication amongst project team members.
2. Identify how BIM streamlines and expedites the construction document phase.
3. Explain why BIM is gaining traction with residential architecture firms.
4. Illustrate how to properly use BIM to enhance creativity in design.
5. Utilize BIM to easily incorporate homeowner requests for sustainable and energy-efficient designs.

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with fire pits, sophisticated residential owners are requesting materials, detailing, and spatial characteristics they would like their architects to consider.

"Clients have been asking us for buildings that are dynamic, complex, and changeable," says Luke Ogrydziak, AIA, principal, Ogrydziak Prillinger Architects, San Francisco, California. "To successfully develop and build such complex projects, it is essential for us to have the proper tools to engage in a dialogue with our clients throughout the entire process."

BIM FOR EVERYONE

This is where BIM's powerful visualization capabilities come into play, as architect and client collectively work to discover the vision and context with which the homeowner seeks.

Thanks to current virtual technology, designers can capitalize on interactive 3-D presentation tools, enabling anyone to view a model.

"This technology is an absolute game changer, not only for the way we previsualize projects, but more importantly, how we help our clients to previsualize their future built home," states David Hertz, FAIA, David Hertz Architects & Studio of Environmental Architecture (S.E.A.), Venice Beach, California. "Our clients, without exception, have been so impressed by the ability to visualize the project, from the ability to create layer sets for different texture mapping of finishes to the integration of being able to reference from 3-D to plan and sections."

"It truly engages the client early on like nothing else," adds S.E.A. Project Manager Ed Milan. "Renderings and plans alone are static. The BIM viewer enables a clearer understanding and deeper conversation of space planning and perception."

Helping clients to easily visualize lines of sight, adjacencies, massing, or volumes of space, designers and users can quickly pull up different view angles and perspectives, switch between the 3-D model and 2-D floor plan, and zoom in on details. As the clients go through these virtual walkthroughs, architects are able to test out various design options and materials in real time.

"This viewing software has allowed us to dial into the experiential qualities of the design in a new way, i.e. what it's like to walk from one space to another, lay in bed, watch TV, or look at the view from various points in the house," explains Meghan Beckmann, AIA, architect, KAA Design, Los Angeles, California. "This comes into play during the design phases and also during construction, when it is hard to visualize or remember what a space is going to look like when the project is in framing."

Along those same lines, Baton Rouge-based Kevin Harris, FAIA, sees BIM facilitating early buy-in, particularly for homeowners who see 2-D floor plans and orthographic projections as what he calls illegible hieroglyphics. "BIM allows me to assist my clients' ability to 'see' and question what they are commissioning while it is still on paper."

While the BIM presentation software is rather intuitive, today's homeowners are also much more tech-savvy and generally pick up the ins and outs of viewing BIM models within the context of what their potential home or remodel might look like.

ON THE SAME PAGE

The bottom line is that residential clients are much more engaged in the design process, which is a win-win for both clients and architects.

"I love that my clients understand what we're proposing," says Christopher T. Lee, AIA, NCARB, Design Associates Architects, Jackson, Wyoming. "There's no more anxiety, wondering if they understand what we're building. We've covered the design in this BIM presentation software, so they know what to expect."

Furthermore, when homeowners want to make changes, they can see the BIM software updating all of the views and drawings on the spot. This type of real-time experience further engages owners in the overall process, almost always resulting in a more satisfied customer.

"Our clients are beyond thrilled that they can pull out their iPhone and show off their 'finished' house, even prior to the commencement of construction," relates Forrest Murphy, AIA, LEED AP, principal, CAST Architecture, Seattle, Washington. "We see them getting very excited when we can show them their design in full detail. The technology helps give them the confidence to move forward into construction."

Case in point, for CAST's Ward Street Bungalow project in Seattle, the architects proposed a two-story addition behind the small existing bungalow, with a wedge-shaped courtyard that cut into the old house between the two spaces. However, the owners were initially worried that the courtyard would feel too confined, especially on the uphill side of the steep slope.

Continues at ce.architecturalrecord.com



With the help of BIM presentation software, CAST Architecture helped the owners of this Ward Street Bungalow project in Seattle, Washington, feel more confident about a proposed wedge-shaped courtyard within the backdrop of the steep mountainside.

Image courtesy of CAST of Architecture

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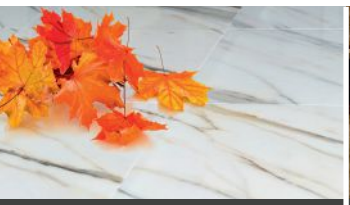
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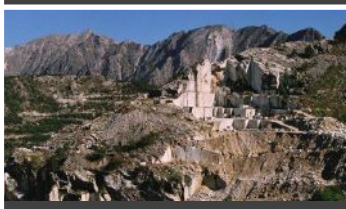
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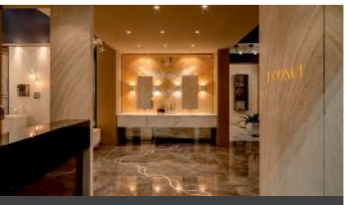
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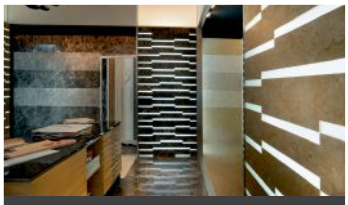
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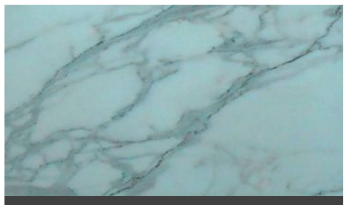
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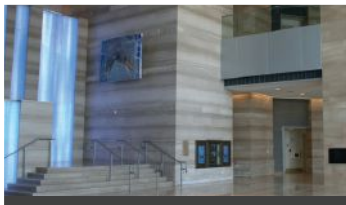
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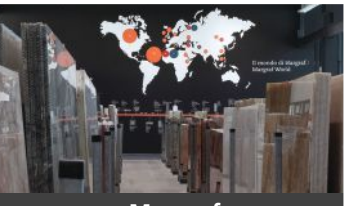
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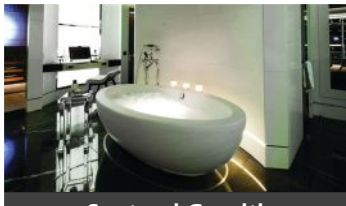
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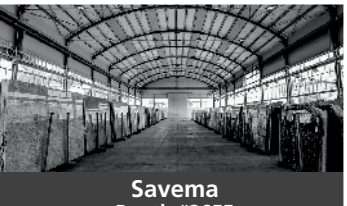
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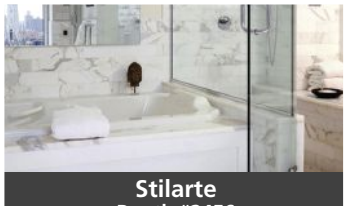
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- 100% grass coverage

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Circle 153

LANDSCAPING, SITEWORK

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Tournesol Siteworks



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Product Application

• Roof decks with deck joists
• Porcelain or concrete pavers
• Wood tiles

Performance Data

• Accommodate heights from 1-1/2" up to 40"
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Circle 157

MECHANICAL SYSTEMS, HVAC, PLUMBING

HIGHEST RESOLUTION TOUCHSCREEN

NEW

Price Critical Controls



The Touchscreen Pressure Monitor (PMT) provides pressure monitoring of critical spaces using the latest in microcontroller and sensor technologies.

Product Application

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- Operating Rooms
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Performance Data

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- BTL certified BACnet room pressure monitor

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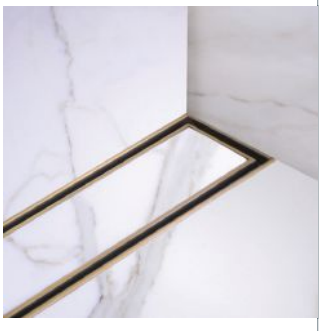
Circle 154

MECHANICAL SYSTEMS, HVAC, PLUMBING

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WR | NEW

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Performance Data

• Clear tinted Powder Coat finish on Stainless Steel provides supreme durability in the shower
• Create ADA, barrier free showers
• Transform the drain into a design element

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516.767.6786 | Info@InfinityDrain.com Booth: 10120 HD Expo

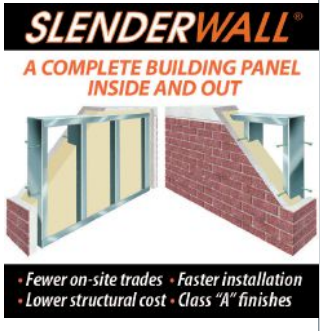
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Product Application

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- Hilton Hotel, Montreal, Quebec, Canada
- Westin Luxury Hotel, Virginia Beach, VA
- US Army Legal Headquarters, Ft. Belvoir, VA

Performance Data

- Compliant with all IECC/ASHRAE energy codes

www.slenderwall.com
800.547.4045 | info@easiset.com

Circle 151

PHILAIADELPHIA!

AIA Convention 2016: May 19–21, Philadelphia

The American Institute of Architects

Register early for best rates.

www.aia.org/convention

CIRCLE 228

"Belief in the significance of architecture is premised on the notion that we are, for better or worse, different people in different places, and on the conviction that it is architecture's task to render vivid to us who we might ideally be."

— FROM ***THE ARCHITECTURE OF HAPPINESS,*** ALAIN DE BOTTON



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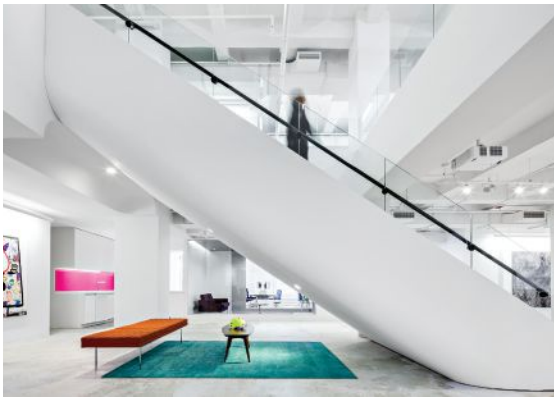
CIRCLE 230

2016 CALL FOR ENTRIES
Record Kitchen & Bath

The editors of ARCHITECTURAL RECORD are currently accepting submissions for the **2016 Record Kitchen & Bath** competition. Entry is open to any registered architect, as well as any designer working in collaboration with architects, who has completed an innovative residential and/or commercial kitchen or bath project in the last year. We are looking for projects that feature unexpected materials, address unique client needs, or are designed in a manner that allows these utilitarian spaces to be functional, sustainable, and beautiful. Winning projects will be featured in the October 2016 issue.

The fee is US$50 per entry. To enter, visit: kandb.architecturalrecord.com. E-mail questions to ARCallForEntries@bnpmedia.com. (Please indicate **Record Kitchen & Bath** as the subject of the e-mail.) **Submissions are due June 1, 2016.**

2016 CALL FOR ENTRIES
Record Interiors



The editors of ARCHITECTURAL RECORD are currently inviting submissions for the **2016 Record Interiors** issue. All architects registered in the United States or abroad, as well as interior designers working in collaboration with architects, are welcome to submit interiors-only projects that have been completed in the last year. The projects may be new construction, renovation, or adaptive reuse; commercial or residential; domestic or international. Special consideration will be given to works that incorporate innovation in design, program, building technology, sustainability, and/or materials. The winning projects will be featured in the October 2016 issue.

The fee is US$75 per entry. To enter, visit: recordinteriors.architecturalrecord.com. E-mail questions to ARCallForEntries@bnpmedia.com. (Please indicate **Record Interiors** as the subject of the e-mail.) **Submissions are due June 1, 2016.**



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CIRCLE 6

New and Upcoming Exhibitions

NYCxDESIGN
New York City
May 3–17, 2016
New York's official citywide celebration of design, *NYCxDESIGN* spans all disciplines, placing emerging design practices alongside established ones. The show's program includes exhibitions, installations, trade shows, talks, launches, and open studios. Events are staged across all five boroughs of the city, in facilities from convention facilities to public parks. For more information, visit nycxdesign.com.

Ongoing Exhibitions

Bauhaus Twenty-21: An Ongoing Legacy
Palm Springs, California
Through May 1, 2016
This exhibition showcases 12 of the most iconic achievements of Bauhaus architecture built before 1933, bringing the buildings into conversation with contemporary architectural visions. Each building, photographed by Gordon Watkinson, will be featured in conjunction with a project built in this century. For more information, visit psmuseum.org.

The New American Garden: The Landscape Architecture of Oehme, van Sweden
Washington, D.C.
Through May 1, 2016
Wolfgang Oehme (1930–2011) and James van Sweden (1935–2013) revolutionized American landscape architecture. Rejecting the well-manicured but perpetually thirsty lawns that had become icons of 20th-century suburban neighborhoods and corporate campuses, Oehme and van Sweden instead used ornamental grasses and perennials to create living tapestries that required relatively little maintenance. At the National Building Museum. For more information, visit nbm.org.

A Japanese Constellation: Toyo Ito, SANAA, and Beyond
New York City
Through July 4, 2016
This exhibition at the Museum of Modern Art focuses on the network of architects and designers that has developed around Pritzker Prize–winners Toyo Ito and SANAA, presenting recent works by internationally acclaimed designers including Kazuyo Sejima, Ryue Nishizawa, Sou Fujimoto, Akihisa Hirata, and Junya Ishigami. For more information, visit moma.org.

Lectures, Conferences, and Symposia

Coverings
Chicago
April 18–21, 2016
Coverings is the largest trade show in North America of global tile and stone. This year's conference, at Chicago's McCormick Place, will feature exhibitors from more than 40 countries. On top of a robust program of speakers and panels, more than 60 continuing-education sessions will be available to attendees and exhibitors. For more information, visit coverings.com.

Craig Dykers and Elaine Molinar: Snøhetta
New York City
April 20, 2016
In this public lecture, founding partner Craig Dykers and partner and managing director Elaine Molinar will present the work of Snøhetta, an international practice of architecture, landscape, interiors, furniture, graphics, and brand design. Snøhetta has won numerous international awards, including the Mies van der Rohe European Prize for Architecture and the Aga Khan Prize. This lecture will take place at Cooper Union. For more information, visit archleague.org.

LIGHTFAIR International 2016
San Diego
April 26–28, 2016
The world's largest annual architectural- and commercial-lighting trade show and conference, LIGHTFAIR is where light, technology, and design converge to reveal new solutions. Highlights will include six pavilions with product-specific manufacturers and more than 200 hours of accredited education. At the San Diego Convention Center. For more information, visit lightfair.com.

ICFF
New York City
May 14–17, 2016
The 28th annual ICFF, North America's platform for global design at the Jacob K. Javits Convention Center, will feature more than 750 exhibitors of furnishings, textiles, and accessories for residential and commercial interiors. This convention will offer a broad yet highly focused selection of the world's finest and most innovative avant-garde home and contract products. For more information, visit icff.com.

AIA Convention 2016
Philadelphia
May 19–21, 2016
The AIA Convention is one of the largest annual gatherings of architects and design professionals in the United States. This year's iteration will take place at the Pennsylvania Convention Center. For more information, visit convention.aia.org.

Architectural Record Innovation Conference
San Francisco
June 8, 2016
Innovative architecture requires expanding the boundaries of the discipline by spurring creativity through design and technology. This year's conference brings together key figures who have generated a range of imaginative solutions for the built world. From architects practicing outside the discipline to principals of large firms to materials experts and graphic designers, the event's participants represent different approaches to original problem-solving in a rapidly changing world. At the Mission Bay Conference Center. For more information, visit arinnovationconference.com.

NeoCon 2016
Chicago
June 13–15
NeoCon, the largest commercial interiors show in North America, has been held at the Merchandise Mart in Chicago since 1969. The three-day event attracts nearly 50,000 design professionals and showcases more than 700 companies. For more information, visit neocon.com.

Competitions

Robert A.M. Stern Architects Fellowship
Submission deadline: April 8, 2016
The RAMSA Travel Fellowship is a $10,000 prize awarded yearly by Robert A.M. Stern Architects for the purpose of travel and research. Established to nurture emerging talent, the prize is awarded to an individual who has proven insight and interest in the profession and its future, as well as the ability to conduct in-depth research. For more information, visit ramsa.com.

Ugandan LGBT Youth Asylum
Registration deadline: April 20, 2016
Since the Republic of Uganda gained independence from the U.K. in 1962, it has retained many of its anti-gay laws and gone so far as to institute newer, harsher penalties for homosexual acts. This competition asks for visions of a Ugandan LGBT youth center that will act as an asylum for people who are no longer welcome in their own homes. For more information, visit ugandanlgbtyouthasylum.beebreeders.com.

Call for Proposals:
The Deborah J. Norden Fund
Submission deadline: April 22, 2016
The Deborah J. Norden Fund awards up to $5,000 annually in travel grants to students and recent graduates in the fields of architecture, architectural history, and urban studies. Established in 1995 in memory of architect and arts administrator Deborah Norden, the fund has supported a wide array of projects over the past two decades. It supports independent projects that require travel. For more information, visit archleague.org.

RIBA Norman Foster Travelling Scholarship
Submission deadline: April 22, 2016
The 2016 Royal Institute of British Architects (RIBA) Norman Foster Travelling Scholarship is inviting applications from architecture schools around the world. Research topics should relate to the survival of British cities and towns. For more information, visit architecture.com/riba.

Syria: Postwar Housing Competition
Registration deadline: April 23, 2016
The Syrian civil war, which began in 2011, has created a refugee crisis. As more and more cities of the war-torn country are freed, and refugees start to come back, housing scarcity will escalate. This competition invites architecture students and young architects to research new housing concepts for postwar Syria. For more information, visit matterbetter.com.

London Internet Museum
Registration deadline: May 4, 2016
This competition asks architects and designers to submit ideas for the London Internet Museum, a space that will connect visitors to the history and future of the Internet. The chosen site is the now-closed North Woolwich Old Station Museum, housed in the original Great Eastern Railway terminal station building. For more information, visit londoninternetmuseum.beebreeders.com.

perFORM 2016
Submission deadline: June 17, 2016
Now in its third year, this competition challenges architectural students and interns to design a net zero energy mixed-use, multifamily building in Seattle's Rainier Beach community. Group and individual entries will be judged based on the criteria of resourcefulness, replicability, beauty, and community response. For more information, visit hammerandhand.com.

E-mail information two months in advance to recordevents@bnpmedia.com.



CIRCLE 7

snapshot

PROJECT **CAMP COMMANDER'S HOUSE**
LOCATION **WESTERBORK, THE NETHERLANDS**
ARCHITECT **OVING ARCHITEKTEN**

BETWEEN 1942 and 1945, nearly 107,000 Dutch and German Jews passed through Camp Westerbork, a detention facility in the northeast Netherlands. Trains, arriving like clockwork every Tuesday, transported detainees to extermination camps including Auschwitz-Birkenau and Sobibór. Little remains of Westerbork's 100 or so buildings except, ironically, the green clapboard house that belonged to the camp's commander. In 2012, Dutch firm Oving Architekten won a competition to create a protective enclosure for this deteriorating monument to infamy, but wanted their contribution to dissolve into the background: "We tried to not make a building," explains principal Francine Neerhof Oving. The architects devised a simple yet powerful solution, encasing the entire house in a glass and steel box. Everything—including the house's narrow yard and front step—is locked away inside this pavilion, only accessible to visitors a few times throughout the year. In its vitrine-like glazed enclosure the house becomes a surreal object, hermetically sealed into a different time and place—a place, the architect says, "that remembers the tears." *Anna Fixsen*



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Round design, Surround cool



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CIRCLE 242

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